Work Control Pilot Procedure [1]

Approved by:

President, Westinghouse Savannah River Company

Purpose

The purpose of this procedure is to establish pilot requirements for initiation, planning, scheduling, execution and documentation of work activities performed by maintenance, construction and vendor/subcontract personnel.

Scope

Where authorized by the division vice president for use, this procedure will be used in lieu of Procedure Manual 1Y, Procedure 8.01, "Work Control Procedure". The scope of this procedure includes implementation of approved modifications, fabrications, and maintenance (preventive and corrective) activities impacting facilities, buildings, systems, equipment, components and operations at the Savannah River Site. Additional guidance on preventive maintenance is given in Manual 1Y, Procedure 5.02, "Preventive Maintenance Program".

This procedure specifically excludes:

- plant/system evolutions that are the responsibility of operations (e.g., valve line ups)
- vehicle and fleet maintenance (e.g., automobile and truck repairs)
- office equipment repair (e.g., personal computers, copiers), radios and pagers
- network service requests
- activities in support of R&D which are directed and overseen by R&D personnel
- greenfield project work (see Glossary)
- special one time tests conducted on operating systems. Such tests shall meet the requirements of Manual 1Q, Procedure 11.1, Test Control
- start-up tests - Such tests shall meet the requirements of Manual 5E, Startup Test
- portable/mobile equipment unless such equipment is specifically included in a facility Maintenance Implementation Plan (MIP)
- fabrication performed at Central Shops Fabrication Facilities

Terms and Definitions

See Glossary.

Responsibilities

Cognizant Quality Function (CQF)

The Cognizant Quality Function (CQF) is responsible for:

- assisting planning as necessary with incorporation of inspections into the work order/work instructions
- pre-approval and post work review of work orders for SS/SC equipment, design modifications, work requiring independent inspections or work associated with startup operations

Cognizant Technical Function (CTF)

The Cognizant Technical Function (CTF) is responsible for approving the positioning of material assets in conditions that do not meet storage requirements.

Customer

The customer is responsible for:

- deferring PM frequency criteria
- providing input on work priority
- accepting completion of work

Engineering

Engineering is responsible for:

- initiating work requests for design modifications
- providing planning information for design modification work orders
- pre-approval and post work review of work packages for plant modifications, work involving process ventilation and air balance

Environmental Coordinator

The Environmental Coordinator is responsible for pre-approval of work packages that affect permitted environmental systems and permitted outfall sampling equipment.

Facility Custodian

The Facility Custodian is responsible for:

- providing functional classification and funding source for work order development if not available in CMMS equipment database
- resolving WCP uncertainty

- releasing equipment and work area
- accepting SSC back from the implementing work organization

Facility Operations Shift Manager

The Facility Operations Shift Manager is responsible for:

- pre-approval of work order for work affecting an LCO or if Operations must start, stop, align or perform extensive activities within the maintenance instructions
- authorizing performance of work in the facility

Facility Waste Coordinator

The Facility Waste Coordinator is responsible for pre-approval of work order that will generate any mixed or hazardous waste, require a new satellite accumulation area or a new staging area, generate excessive amounts of radioactive waste, or require special waste disposal methods.

Fire Protection Coordinator

The Fire Protection Coordinator is responsible for pre-approval of work order that will impact fire safety systems or introduces an ignition source.

Fix-It-Now (FIN) Team

The Fix-It-Now (FIN) Team is responsible for:

- determining if the task is within FIN scope to work.
- completing the Walkdown Data Sheet or equivalent document if task in not with FIN scope of work
- implementing and documenting work activities for tasks within FIN scope of work

HVAC Coordinator (Aux. Equipment)

The HVAC Coordinator is responsible for pre-approval of work package affecting process ventilation and air balance.

Implementing Work Group

The Implementing Work Group is responsible for:

- pre-approval and post work review of work packages
- exercising safety and professionalism in the accomplishment of all tasks

Industrial Hygiene (IH)

The Industrial Hygiene is responsible for pre-approval of work packages involving hazardous material, confined space entry, or excavations.

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Initiator

The Initiator is responsible for notifying the WMC or Facility Manager / Shift Operations Manager of field observed conditions requiring work.

Planning Personnel

Planning Personnel are responsible for:

- developing the details and documentation necessary to accomplish the task as described in Section B of this procedure
- determining Davis-Bacon applicability for work orders

Radiological Control Operations (RCO)

Radiological Control Operations is responsible for:

- pre-work review and approval of work orders containing radiological hazards
- generating an RWP if one is required and provide assistance for radiological instructions, hold points and other radcon issues
- determining the need for an ALARA review/pre-job briefing
- assisting in containment requirement determinations
- ensuring all radiological issues are covered by the SRWP or RWP and the work package

Scheduling Function

The Scheduling Function is responsible for:

- providing planning with an order of priority with which to plan the task
- providing an approved detailed schedule that is integrated, resource loaded, incorporates logic ties and is prioritized
- determining the Optimum Performance Window (OPW) for work activities and to conduct periodic OPW review meetings to ensure schedule validity, logic, and accuracy
- ensuring availability of parts, tools, materials, equipment, personnel, and permits, manages schedule performance, expedites work, and resolves obstacles to schedule execution
- coordinating post work reviews and approval of work packages

Subcontract Technical Representative

The Subcontract Technical Representative is responsible for:

- performing the closure responsibilities associated with the implementing Work Group Supervisor/Designee for subcontracted work
- signing for the implementing Work Group Supervisor/Designee for subcontracted work

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Welding Independent Examination

The Welding Independent Examination is responsible for pre-approval of work packages involving welding that requires independent examinations.

Work Management Center (WMC)

The Work Management Center (WMC) is responsible for:

- assisting the Facility Manager / Shift Operation Manager in determining whether an actual emergency exists based on the information provided
- performing initial and detailed screening of work requests as described in Section A.2 and A.3 of this procedure
- ensuring that the Facility Operations Shift Manager is made aware of any deficiency which has created an LCO
- developing and documenting a WCP to facilitate the FIN in walking down or working a task
- approving work order in CMMS
- evaluating and accepting completed work and notifying Operations of changes in equipment/system availability
- post work approval of work packages
- timely closeout of work packages

Procedure

A. Maintenance Notification and Fix-It-Now (FIN) Team Response

1. Work Order Initiation

a. Verbal Initiation

1) Field observed conditions requiring work can be initiated verbally by anyone. These requests are initiated by contacting the Facility Work Management Center (WMC) via telephone or in person. Notification of deficiencies shall be made as soon as practical (normally within the shift). The initiator shall also attach a condition tag to the deficient equipment per step A.1.a.2). [See Attachment M for a Sample Condition Tag] For perceived emergencies or situations requiring immediate attention, the WMC or Facility Manager / Shift Operations Manager is to be contacted verbally without delay. After screening activities as described in steps A. 2 and A. 3, the WMC will enter valid, non-duplicate Work Notifications into the CMMS (Computer Maintenance Management System).

2) The following conditions are to be adhered to when utilizing Condition tags (or stickers):

- If the Condition tag might block an instrument or reading, utilize a peel off Condition "sticker" in place of a tag.
- If access to the equipment is limited, such as with piping runs overhead, the tag may be affixed near or adjacent to the equipment.
- Affix Condition tags using plastic ties or other appropriate devices to ensure the tag remains in place.

- A Condition tag is not required where its use will conflict with ALARA principles, increase personnel exposure to hazardous environments, affect operability or visibility of plant equipment (not required where Alarm Status Tags are used per 2S Manual, Procedure 5.5) or compromise safety.

NOTE: Each facility shall maintain a log of Condition tag numbers used. The log may be kept in the CMMS.

b. Electronic Initiation

1) Electronic initiation may be accomplished by an electronic entry into the CMMS. Electronic initiation should be limited to personnel trained and qualified for CMMS entry. The following activities are appropriate for electronic initiation:

- non-emergency field observed conditions (i.e. CM, Corrective Maintenance requests)
- modifications requiring design packages
- original Preventive Maintenance (PM) requests (as defined in 1Y glossary to be Periodic, Planned, and Predictive work activities)

2) As with verbally initiated Work Notifications, this information shall be processed as soon as practical (normally within the shift) for field observed conditions and a condition tag hung. All CMMS required data fields must be completed before the identified Work Notification can processed into a Work Order.

c. Modification Work Orders

1) Work Orders which call for modifications are only to be processed after a design package is developed and approved. For performance of an approved design modification, a request will be initiated by the responsible design/engineering organization and forwarded to the WMC per step A.3.n. [Note: For purposes of this procedure, General Services (GS) modifications not requiring design control constraints required by the E7 Manual will be processed as corrective maintenance work.]

d. CMMS Entry for New PM Work

1) Work Orders for new PM work can only be processed after a scope approval is obtained (process per Manual 1Y, Procedure 5.02, “Preventative Maintenance Program”).

e. Alternate Work Order Processing

1) In the event a facility WMC is not staffed for 24 hour operations, an alternate WMC should be designated which can provide coverage during the time frame that the cognizant facility WMC personnel are not available.

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2. Work Management Center Initial Screening

a. Emergency Work Notifications/Orders

1) Upon notification of a problem identified as an emergency, the Work Management Center will assist the Facility Manager / Shift Operation Manager in determining whether an actual emergency exists based on the information provided. [See Attachment A for the definition of a Priority E, Emergency request.] If the situation is deemed an emergency, the WMC will, at the direction of the FM / SOM initiate the appropriate emergency response actions. If appropriate, the WMC will dispatch the Fix-It-Now Team (FIN) immediately to take action per applicable procedures and/or instructions. [See Attachment G for Emergency Work Order Packages]In an emergency, efforts shall be taken to maintain documentation where possible, however, stabilization of the situation takes priority. Completion of documentation may be delayed until after the emergency situation has been stabilized. Once an emergency situation is stabilized, however, work must cease and all applicable documentation brought up to date. Planning activities and approvals must be completed before proceeding with restoration of the structure, system or component (SSC).

b. Non-Emergency Work Notifications/Orders

1) The WMC will answer the following questions:

- Does failure to act on the request result in a safety, security, or environmental concern?
- Is the action requested needed to support a current facility mission?
- Is the action requested needed for personnel habitability?

2) If the answers to all of the above questions are "No", the Work Notification will be canceled (or not entered in CMMS) and the identifier notified. If the answer to any of the questions is "Yes", the WMC will enter the data in CMMS (if not already entered) and further process the Work Notification for development into a Work Order.

3. Work Management Center Detailed Screening

a. Upon completion of the initial screening, the WMC shall refine the work scope to ensure completeness, clarity, and to correct any identified informational errors. If information is questionable or additional data is needed, the WMC shall contact the identifier or other personnel responsible for the structure, system, or component (SSC). Screening shall ensure that the design functional classification and funding source are properly assigned. Normally, SSC information such as functional classification and funding source will be available from CMMS equipment data. If, however, the information is not available in CMMS, the Facility Manager/custodian (or a designated SSC representative) will be contacted to supply this information. After the appropriate approvals for the new information have been obtained, the CMMS will be updated and the Work Order/Notification processed.

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NOTE: If the requested work is within the scope of another WMC's responsibility (as with cross ordered work), the cognizant facility WMC may request the subcontract WMC to complete steps A.3.b-A.3.e., where appropriate. For example, a 200-Area WMC may request the WMC responsible for diesel services to complete the actions in steps A.3.b.-A.3.e for which they are the primary service organization.

b. To validate the need for a new Work Order, the WMC shall check open Work Orders to determine if there are any active duplicates. The check for duplicates shall include evaluating scheduled Work Orders of greater scope (e.g. a PM overhaul) to determine if the request being considered is included. If the request is covered by a Work Order of greater scope, the WMC must determine whether it would be acceptable to delay accomplishment of the requested task until the schedule date for the work of greater scope or if the scheduled date for the work of greater scope can be accelerated. If either schedule change is impractical, the requests will be considered separately. If an acceptable duplicate of similar scope is identified, one of the Work Orders will be canceled and the identifier notified.

c. Following screening for duplicates, the WMC shall check CMMS for closed or model Work Orders of similar scope. If the WMC identifies a comparable task, information from this task (e.g. Work Clearance Permit (WCP), Work Instructions/procedures, parts information, etc.) will be validated for use with the proposed Work Order. If the information is applicable and correct, it should be incorporated or referenced in the proposed request. This information will be made available to the Fix-It-Now (FIN) Team for use in accomplishing walkdowns or performing work within FIN scope. For activities not performed by the FIN, this information will be identified and available in the Work Order for use by the planning organization.

d. Next, the WMC will evaluate the request to determine if either the deficiency created any Limiting Conditions for Operation (LCO) or any LCO's will be encountered as a result of performing the task. If LCO considerations/impacts exist, the WMC will identify time constraints and equipment limitations associated with LCO related activities to the FIN Team. The WMC will ensure that the Facility Operations Shift Manager is made aware of any deficiency which has created an LCO.

e. Determine if a Job Hazard Analysis (JHA) should be performed in accordance with WSRC 8Q, Procedure 38.

f. If no (model) Work Clearance Permit exists, the WMC will develop and document a WCP, if required by Manual 8Q, Procedure 35, to facilitate the FIN in walking down or working a task. If during development of the WCP uncertainty exist concerning WCP considerations, the WMC will contact facility/custodian representatives for a resolution.

g. When the WMC screening activities have been satisfactorily completed, the WMC shall electronically approve the Work Order in CMMS. The WMC or designee will then:

1) Assign compensatory measures identified in the WCP which are necessary to facilitate personnel safety during the walkdown and any subsequent work to be accomplished.

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NOTE: If the location of a task can not be accessed for a walkdown due to ALARA or other compelling safety considerations, information shall be obtained where possible from remote indicators, facility personnel, and technical sources.

2) Determine if a need exists for pre-work field notifications. If notifications are warranted, they are to be specified on the Work Orders. For work with the potential to impact operational Safety Class (SC) or Safety Significant (SS) SSC's, the Facility Operations Shift Manager shall be notified prior to work initiation.

NOTE: If the requested work is outside the scope of the facility WMC's responsibility, the information will be transmitted to the applicable service organization's WMC for further processing.

3) Assign the Work Order to the FIN.

4) Notify the applicable Facility Operations Shift Manager/Custodian or inform the FIN to notify (if deemed appropriate and necessary).

5) Authorize/release the FIN to walkdown the task and, if determined to be within scope, to perform the specified work.

h. The WMC may omit the walkdown process and proceed to step A.3.12 if a walkdown is not necessary to facilitate or accomplish:

- development of a WCP
- gathering of additional planning information from the field
- tagging with a Condition tag [See Attachment M for a Sample Condition Tag]

For example, a walkdown may not be value added for work performed in a shop and may subsequently be omitted. The decision to omit the performance of a walkdown shall be noted on the Work Order by the WMC.

i. Upon authorization to work, the assigned FIN member(s) shall:

1) Obtain a copy of the Work Order.

2) Obtain a copy of all documentation generated or identified during the screening process as necessary (e.g. WCP, Walkdown Sheet, vendor manuals, drawing, instructions, permits, etc.)

3) Obtain all parts or equipment identified as needed.

j. Upon arrival at the work site, the FIN member(s) shall:

1) Make appropriate facility/custodian notifications, if required by WMC.

2) Enact compensatory measures identified on the WCP.

3) Initiate walkdown of the task.

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4) Validate the WCP and, if applicable, gather/document additional WCP information based on field observations. Changes to the WCP which would impact the walkdown must be discussed with the WMC and resolved prior to proceeding.

5) Determine if the Work Order is valid (i.e. scope correct and appropriate for maintenance).

- If the Work Order is not valid, notify the WMC.
- If in agreement that the Work Order is not valid, the WMC will cancel the request and notify the work identifier (and facility/custodian, if deemed appropriate).
- If canceled, the FIN will return job site to at least pre-work status by removal of support material and equipment.

6) Determine if the task is within FIN scope to work. A task is within FIN scope if all of the following are true:

- Accomplishment of the task is typically expected to take four hours or less of wrench time.
- Identified task is within the individual's qualification boundaries.
- A pre-planned/approved model for use in performance of the task is provided or the task does not require written instructions, i.e. “skill of the craft” work.
- The task does not involve or impact SSC's functionally classified as SC or SS, except where an appropriately designated SC or SS pre-planned/approved model exists.
- Accomplishment of the task is limited to a pre-existing lockout or one that is readily available.
- Does not require advanced scheduling to coordinate multiple work/support groups (i.e. Rigging, Radiological, maintenance crews, etc.)
- Does not require special permits which are not readily available (e.g. Job Specific Radiation Work Permit (JSRWP)).
- The degree of troubleshooting is consistent with Manual 1Y, Procedure 8.03 (Troubleshooting) and other aspects of the FIN scope.
- Work is not applicable to the Davis-Bacon Act.

k. If the task is not within FIN scope to work, the FIN member(s) shall verify the presence of a condition tag and if one is not present, hang a condition tag, complete the walkdown and record results. The following information should be collected to the maximum extent practical. The Walkdown Data Sheet (Attachment O) or equivalent document may be used to capture this information.

- material requirements (i.e. type, quantity, size make, model, manufacturer etc.)
- support group requirements (i.e. Rigging, Radcon, QA, maintenance crews, etc.)
- prerequisites
- equipment/tool resource requirements

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- special instructions
- technical data
- configuration required to complete work
- glovebag/containment
- CLI Number
- Personal Protective Equipment

l. Upon completion of information gathering, the FIN member(s) shall:

- notify the facility/custodian, if specified
- update CMMS
- notify the WMC of walkdown completion
- return any documentation, equipment, parts, etc. to its applicable location

m. If the task is within the FIN scope to work, the FIN member shall; (If not within the FIN scope proceed to A.3.n.)

1) Complete the WCP. Changes to the WCP which would impact work performed by the FIN must be discussed with the WMC and resolved prior to proceeding.

2) Obtain permits and enact any additional compensatory measures identified during the walkdown.

3) Obtain additional parts, material, external group support, tools, and equipment identified during the walkdown.

4) Implement and document task performance.

a) If during execution of work it becomes apparent that the task has expanded beyond the scope or capability of the FIN, the FIN shall:

- Notify the WMC (who will, if in agreement, provide direction for disposition of the task and transition the task into a stage of further planning/scheduling per step A.3.n).
- Complete actions and make notifications as directed by WMC.
- Update the CMMS with task status and walkdown information.

5) Complete task.

6) Return job site to at least pre-work status by removal of support material and equipment.

7) Obtain WMC/customer acceptance.

8) Obtain post approvals per Attachment B.

9) Return unused parts and materials to their proper location.

10) Update the CMMS to reflect Work Order close out information.

n. When notified by the FIN that a task is not within its scope to work and the walkdown is complete or upon receipt of a Work Order for a modification design package from engineering, the WMC shall:

- approve modification design package Work Orders
- communicate any operational impact and recommended priority to Scheduling based on Attachment A
- forward the Work Order to Planning

B. Work Planning

1. Detailed Work Scope Development

a. Upon receipt of Work Order information from the WMC (per step A.3.n), Scheduling will evaluate the input against operational needs and provide Planning with an order of priority with which to plan the task. Planning will assign a planner to develop the details and documentation necessary to accomplish the task.

b. The planner should screen the CMMS to determine if greater efficiency can be obtained by combining the new task with other active requests which relate to the same or similar SSC's. Related tasks will be combined where practical and a detailed work scope developed. If additional information is necessary to plan the job, the planner may perform a walkdown of the work site and/or contact knowledgeable individuals. Utilization of the Walkdown Data Sheet (Attachment O) for documenting information gathered is optional.

c. After determining whether related tasks should be combined, the planner shall transition the new task from a Work Notification to a Work Order status in CMMS. A multi-task Work Order will be generated where appropriate.

2. Work Order Preparation

a. If a Work Order is initiated as a design modification, the planner shall review and evaluate the information provided by engineering. The Work Order and associated design documentation are to include sufficient information to allow Work Order planning and implementation. If additional details are needed, the planner shall contact engineering for the required information. The work order shall be planned in accordance with the remainder of this section (B) and Attachment G Section B (Special Work Order Packages, Plant Modification Work Order/Temporary Modification Work Order Packages)

b. When planning Work Order tasks, the planner shall screen for previously performed tasks and model Work Orders which contain information or documentation that can be utilized for task planning. Reference Work Order information may also be available from the WMC's screening performed in step A.3.c.

c. Determine work order package contents and document in the Table of Contents (OSR 39-86) based on the following matrix:

NOTE 1: The following matrix provides minimum work package content requirements.

NOTE 2: The PM Work Order form history section may be used in lieu of/in addition to a Work History Sheet, (OSR 39-93).

Work Package Contents Matrix					
ITEM	OSR	SC/SS	PS/GS	FIN	PM
Table of Contents	39-86	Y	Y	N	N
Revision Sheet	39-89	1	1	N	A
Review/Approval Sheet	39-87	Y	Y	N	A
Work Order	39-88	Y	Y	Y	Y
Work Package Preparation Checklist	39-90	A	A	N	N
Post Maintenance Test Plan (1Y Procedure 9.01)	39-91	A	A	A	A
Procedure/Detailed Scope of Work Task List		2	A	A	A
Work History Sheet	39-93	Y	Y	Y	A
Bill of Material (1Y, 11.01), CGD Packages (E7, 3.46)	39-96	A	A	A	A
Reference/Supporting Documents		A	A	A	A
Condition Tag copy (Attachment M)		A	A	A	A
Work Clearance Permit (WCP)	20-103	3	3	3	3

Matrix KEY:
Y Always Required.
A If applicable.
N Not required.
1 Required if package is revised.
2 Maintenance Instructions, procedure, or detailed scope of work if *not* skill of craft.
3 As required by Manual 8Q, Procedure 35.

d. Determination of the adequacy of available instruction and procedure for use in the Work Order include considering how well the instructions and procedures address needs in the following areas:

- prerequisites
- hazards and compensatory actions
- permit and regulatory/programmatic requirements
- parts/material needs
- special tool/equipment needs (i.e. those that are not as a routine readily available)
- resource support needs (i.e. qualifications, organizations, and subcontracts)
- action steps/instructions
- testing/inspections/verifications requirements
- acceptance criteria
- field observed requirements recorded on the Walkdown Data Sheet (Attachment O)
- data history and record needs

1) Determination of the need for instructions and procedures include considering:

- consequence of malfunction or failure
- degree of complexity or uniqueness
- need for control of task sequence accomplishment
- need for SSC maintenance history/data
- extent of task coordination involved
- desire for consistency and efficiency
- difficulty of correction, repair, or replacement
- applicability of requirements from other instructions procedures, drawings, specifications, codes and standards
- facility status, impairments, line-ups, compensatory actions

NOTE: Typically, work performed on SC and SS SSC's will involve the use of instructions/procedures to ensure the adequacy of work performed and to document actions taken.

NOTE: Work that is classified as Safety Significant (SS), Production Support (PS) or General Services (GS) is to be planned using the administrative controls for Safety Class (SC) if the work impacts any of the following:

- seismic supports

- work that has the potential to affect equipment classified as SC

2) If the need for instructions/procedures exist, the planner shall either:

- identify applicable instructions/procedures
- initiate a Procedure Request Form to have a procedure developed
- develop instruction in CMMS using Attachment D

NOTE: Incorporate the following information into a work instruction when only a portion of an approved procedure is used in work implementation:

- reference to the applicable approved procedure
- designate the specific section(s) or step(s) to be performed
- specify prerequisites and precautions that are applicable
- designate data to be recorded/retained

e. The following provides a list of items that the planner should consider when planning work. These considerations are provided as an aid and are not meant to be all inclusive. Information/documentation of this nature should be included as applicable when preparing a Work Order.

1) Applicable supporting requirements defined in the following:

- Industrial Hygiene (Reference Manual 4Q)
- Safety (Reference Manual 8Q)
- Safe Electrical Practices and Procedures (Reference Manual 18Q)
- Technical Specification Requirements
- Fire Protection Requirements (Reference Manual 2Q)
- Security Requirements (Reference Manual 7Q)
- Savannah River Site Radiological Controls (Reference Attachment H/I, Manual 5Q and 5Q 1.1)
- Pressure Equipment Registration, Inspection, and Testing (Reference Procedure Manual Y1-7)
- Domestic Water Requirements (Reference Manual WSRC-IM-90-138)
- Environmental Requirements (Reference Manual 3Q)
- Waste Certification Procedure (Reference Manual 1S)
- 1Y Procedure 9.01, Post Maintenance Testing

NOTE: Include in the Work Order, specific instructions or references to implement appropriate requirements of the above manuals/ documents.

NOTE: RCO will assist the planner, as needed to determine if a radiological hazard exists and if so what action steps, hold points for Radcon controls are required for the instructions.

2) Removal of interference item considerations

- precautions or notifications to address impact on adjacent systems, equipment or components
- removal and reinstallation instructions

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- inclusion of design requirements

3) Parts/materials staging, identification and/or traceability considerations

- Inclusion of information that ensures parts and materials meet the appropriate material control procedures for the release of parts and materials.
- Assurance that each component installed is uniquely identified, as specified by approved identification programs.
- Retention of parts for evaluation when requested by Engineering or the equipment owner.
- Control of the use of parts from extra machinery. Controls shall include:

1. Issuance of a separate Work Order, unless otherwise authorized by extra machinery owner, when activities require parts to be removed from extra machinery. Keep the Work Order open until the extra machinery is reworked.
2. Cross referencing the implementing Work Order with the Work Order that is used to remove the part from the extra machinery.
3. Maintaining traceability of the spare part.

4) Planning considerations

- initiation of a lockout request per Manual 8Q, Procedure 32, Hazardous Energy Control, as applicable
- any supplemental documentation/compensatory measures as specified on the WCP
- identification of lubrication requirements, if applicable
- identification of M&TE requirements, as applicable
- assurance that hazardous material waste requirements are defined
- reference or inclusion of requirements, procedures, instructions, and acceptance criteria for activities such as welding, heat treatment, painting, leak sealing, nondestructive examination, inspection, sterilization/flushing, etc.
- inclusion of hold and witness points as required
- For ASME B31.3 code related pipe activities, reference and include appropriate requirements, acceptance criteria, examinations and owner inspections as defined in Engineering Standards 15060 and Eng. Guide 15060.

NOTE: The applicable consensus standard is referenced in the associated P-Code.

- For work packages that would initiate a new process, change an existing process, and for those activities that fall outside the scope of maintaining normal operations and could potentially result in an environmental impact, an Environmental Evaluation Checklist per manual 3Q, ECM 5.1 may be required. If required, include in the Work Order package.

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- identification of post maintenance testing requirements and acceptance criteria in accordance with Manual 1Y, Procedure 9.01, Post Maintenance Testing
- special training, procedures, or mockups for complex activity needs (Reference Attachments J and K)
- assignment of an activity coordinator and designated responsibilities for complex activities
- facility/organizational notification needs and requirements
- requirements for pre-job briefings
- cross order details (see Attachment C)
- lay up plans for equipment being repaired
- abandoned equipment constraints and requirements
- review past work histories

f. Engineering shall provide technical assistance in Work Order planning. This assistance shall include but is not limited to:

- inspection, test requirements, and acceptance criteria
- requirements for holding parts for evaluation
- traceability requirements for parts and materials
- technical information for the development of Work Instructions and procedures
- development of instructions and parts list for modification. Proper part applicability (RIE,CGD)

g. The CQF and RCO shall provide inspection planning assistance.

h. After identification of parts, material, tools, equipment, and personnel resource requirements, the planner shall estimate (in accordance with Manual 1Y, Procedure 8.02 Maintenance Labor Hour Work Estimation) the associated cost of obtaining these items and/or services. Where applicable, cost estimations should include a comparison of viable methods for resolving the Work Order (i.e. repair, replacement, lease, etc.) and the benefits/ consequences of each. If the cost estimate exceeds $2000 for labor and material assets, the planner shall determine Davis-Bacon applicability (per Manual 1B, 3.64). This determination shall be documented on the appropriate OSR form, OSR 8-89A or B (or the CMMS equivalent.) Upon completion of this process the planner shall authorize release of funding.

i. If the work is to be subcontracted, the planner shall forward all pertinent information to the applicable organization (i.e. the Construction WMC or the STR for the applicable subcontract organization).

j. If the work is not subcontracted, the planned Work Order shall be routed for review/approval and the applicable permits, material requests and tool/equipment requests initiated by the WMC. Each Work Order task shall be approved by the responsible organization(s) designated in Attachment B. Reviewer comments shall be returned to the planner via CMMS for resolution. Upon approval, the planner shall authorize/release funding.

k. When approval of the Work Order is complete, the planner shall notify Scheduling of the work package's status via CMMS.

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C. Work Scheduling

Scheduling provides task management and resource allocation to maximize planning and execution of scheduled work. Several activities are included in this management function. Scheduling provides an approved detailed schedule that is integrated, resource loaded, incorporates logic ties and is prioritized. Once the schedule is implemented, Scheduling ensures availability of parts, tools, materials, equipment, personnel, and permits, manages schedule performance, expedites work, and resolves obstacles to schedule execution. In addition, Scheduling provides status and feedback of scheduled activities and reschedules activities when revisions are required.

1. Optimum Performance Window Determination

a. The goal of the Optimum Performance Window (OPW) determination is to more definitively prioritize Work Orders by establishing an anticipated date for performance of the Work Order. This anticipated (or target) date is based on the best available information at the time of determination, but does not constitute a final commitment. The OPW shall be adjusted as additional information becomes available.

b. Upon receipt of an approved Work Order, the Scheduling function shall consider the following when determining the OPW for a Work Order:

- work priority based on pre-assigned WMC input and operational input which takes into account such considerations as operating schedule demands, system configuration, process safety, LCO issues or other needs/preferences. WMC input will be provided as discussed in step A.3.n. Operations input may be obtained through such avenues as Short and Long Range schedules, Plan Of The Day (POD) meetings, Outage schedules, Plan of the Week (POW) meetings and direct individual contact with customer representative(s).
- PM frequency criteria Drivers for PM schedules shall be specified in CMMS and shall be followed unless properly deferred by the customer organization.
- material, parts, tools and equipment availability
- personnel resource availability (including subcontract/vendor availability, if applicable) An updated list of Facility resource information identifying personnel restrictions and qualifications shall be made available to Scheduling. Information concerning personnel availability and qualifications will be updated in CMMS when commitments or changes become effective**.**

c. If the task to be scheduled was an approved Work Order (per step A.3.n), the Scheduling Function shall provide Planning with an OPW by which to prioritize preparation of the request into a Work Order.

d. If the task to be scheduled was an approved Work Order (from the CMMS as pre-approved PM tasks per step A.1.d.1) or from Planning per step B.2.j), the results of the OPW will be disseminated via CMMS to all applicable organizations.

e. Scheduling shall periodically conduct OPW review meetings to ensure schedule validity, logic, and accuracy. Any resulting schedule changes will be updated on CMMS.

2. Material, Part, Special Tool and Equipment Orders

a. The Scheduling Function assigned to the Work Order shall ensure that materials, parts, special tools and equipment (material assets) from on and off-site sources are ordered/reserved. Likewise, Scheduling shall confirm the delivery, inspection and proper staging of material assets prior to determining whether a Work Order is ready to be executed. If warranted by schedule demands, actions taken to order items may be performed concurrently with measures taken in step C.1 to establish the Optimum Performance Window.

3. Integrated Scheduling

a. The purpose of the Integrated Work Schedule (IWS) process is to optimize the real-time coordination of work activities with facility schedules. This process will serve to define the specific date(s) and time(s) for the accomplishment of Work Order tasks. The intended result is to maximize the use of supporting organization's resources while meeting customer needs. Scheduling will be responsible for facilitating adherence to the overall schedule and approving any necessary changes.

b. All events which will impact the Integrated Work Schedule shall be communicated to the Scheduling Function by the responsible organization. Adjustment will only be made to the IWS if impacted by emerging work of higher priority or incidents/changes occur which are beyond organizational control.

c. When the material assets necessary to perform a Work Order are available/staged, the Scheduling Function will align support personnel to a specific date and time. The Scheduling Function should confer with the impacted organizations and/or other Scheduling groups to see if any questions or apparent conflicts exist. In the event of urgent work, an IWS schedule may be developed and routed for approval prior to the availability of all material assets.

4. Work Schedule Review and Approval

a. Initially the IWS is approved by the applicable facility(s) and support organizations.

b. Once resources have been aligned, the Scheduling Function shall obtain approval of the addition/change to the IWS from the applicable facility and support organizations. This approval confirms the organizations commitment of resources to the specified task(s).

c. Upon approval of additions/changes to the Integrated Work Schedule by the applicable facility(s) and support organizations, the Scheduling Function shall authorize the Work Order additions/changes being made to the active schedule of tasks to be worked. Prerequisites which do not interfere with the facility SSC's may be started/completed prior to step D. Accomplishment of these prerequisites prior to step D shall be specified in the Work Order or approved by the WMC.

D. Work Execution

The execution step is the process of actually performing the defined scope of work. The process begins at the point of work release and ends with the documentation of the completed work activity. The implementing work group(s) shall exercise safety and professionalism in the accomplishment of all tasks.

1. Work Release

a. Prior to the designated IWS work date/time, the WMC or designee shall determine the level of facility notifications to be made for the Work Order to be released. Release of work should be obtained as close to the actual start of work as practical. Depending upon the scope of the work, the WMC or designee may provide this release without additional field notification.

2. Implementation of Pre-requisites

a. Material assets necessary to perform the job are to be obtained from storage/staging areas by the implementing work group and taken to the work site (unless specified otherwise in the Work Order). Efforts should be made to ensure that parts are unpacked before entering an RBA or posted area so that only needed materials are taken into the area. Pre-positioning of material assets in conditions which do not meet storage requirements shall be minimized unless approved by the CTF.

b. Permits and/or compensatory measures which must be performed at the start of work are to be executed. This includes such actions as workplace monitoring, surveying, etc. To expedite work progress, measures which can be implemented in advance of work start may be put in place.

c. The work group shall obtain a copy of the Work Order and associated documents. Controlled documents that are to be used during a shift must be verified for latest revision prior to use during the shift. This may be done via Document Control Center (DCC) notification, database check, or phone call to the DCC. If working copies are found to not be current, they must be replaced with documents of the proper revision and the Work Order updated.

d. A pre-job briefing will be performed for all work. Level of detail, formality, and documentation are at the discretion of the First Line Supervisor/Designee unless specified by the Work Order documentation or other procedural requirements.

3. Work Order Performance

a. Implement Instructions

1) The practices listed below are to be followed in the accomplishment of all work. This list is not, however, intended to be all inclusive or sequential:

- Ensure at least one person assigned to perform the specific task is qualified per divisional qualification requirements.

- Prior to the start of work, make any applicable notifications if required (e.g. independent inspection organization).
- Perform only the work authorized by the Work Order and covered by the applicable WCP.
- Accept responsibility for the equipment and work area once released by the WMC or Facility Shift Manager/Custodian.
- Notify the Facility Operations Shift Manager prior to an activity that will impact any operating system including such things as fire protection, air balance, etc.
- Ensure that the minimal amount of material and packaging are taken into the RBA's or posted areas.
- If the work is to be performed in contaminated, oily or dirty area, etc., make a copy of the affected portion of the Work Order documentation and mark it "Field Copy". Transfer the field copy data to the primary work package prior to close out.
- Monitor work in progress to ensure activities are conducted in accordance with Work Order requirements and applicable policies and procedures.
- Ensure that applicable permits are current and effective.
- Conduct pre and post job briefings and walkdowns as required.
- Ensure compliance with Radiation Work Permits (RWP) and practice ALARA concepts to minimize personnel exposure.
- Implement changes made to approved Work Orders per Attachment E, Work Order Administrative Controls.
- Ensure parts and materials to be used meet specified quality requirements including shelf life.
- Ensure that the following actions are taken if, during the performance of the Work Order, work is interrupted:
  - place the equipment in a safe condition
  - notify the shift manager and Scheduling Function
  - complete general area housekeeping requirements
  - cover and protect system and equipment
  - document the interruption in the work history
- Prior to continuing work verify that the work location, lockouts and permits still support implementation of the activity.
- Ensure housekeeping standards are maintained during the performance of the work activity and after completion of the work.
- Ensure proper interface is maintained when more than one support group is involved in the work activity.
- Assist Engineering in determining the probable cause of the equipment or system malfunction as required.
- Identify/mark and retain failed components for evaluation when required by Work Order Task Instruction/procedure or as requested by engineering or the equipment owner.
- Ensure that items such as hoses and electrical cords that cross radiological boundaries are identified and secured to prevent inadvertent removal.

b. Document Work Progress

- Ensure the status of the equipment or system is maintained to support the work activity.

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- Provide detailed turnover from shift to shift to ensure continuity and prevent duplication of work as applicable.
- Maintenance Instruction steps must be performed in a specific order unless otherwise specified.
- Complete required step sign-offs, readings or other data fields as they are performed in order to facilitate tracking work progress and ensure accomplishment.
- Ensure that the appropriate work history section of the CMMS is updated as the job progresses. If work is temporarily suspended, document a detailed narrative of the cause and point of interruption in the work history. The initials and date of the individual making the input are to be entered after all comments made in the work history.

- Complete weld maps/sketches as required by weld procedures when included in the work package.
- Document all parts used in the CMMS (make, model, manufacturer).
- Return unused parts and materials to their proper location.
- Record the personnel involved and actual hours worked in the appropriate work history section of the CMMS.
- Generate a work notification, as required, to address any deficiencies found during performance of a PM activity. Record the PM work order number on the work notification.

c. Post Maintenance Testing

- If the Work Order requires the maintenance function to perform post maintenance testing, testing is to be conducted in accordance with Manual 1Y, Procedure 9.01, Post Maintenance Testing. Any discrepancy in Work Order specified test requirements and acceptance criteria must be evaluated and resolved prior to acceptance.
- If subcontract personnel are involved with testing, their activities shall be coordinated through the applicable STR.
- If the post maintenance testing of the SSC was unsuccessful and rework is necessary, the new work order will be handled in accordance with the CMMS. The new task shall be identified as rework and reference the initial Work Order task.

4. Post Work Activities

a. Post work activities for Work Order tasks are processed individually. The organization designated as having primary responsibility for each task in a Work Order shall ensure CMMS is updated with all information relative to that task at the completion of work/testing. This shall include ensuring all data fields such as material usage, personnel involvement (names and hours), sign-offs, technical data input, and test results are accurately documented. If more than one task is involved in accomplishment of a Work Order and the associated work groups differ, a supervisor for each responsible work group shall review and approve the associated Work Order tasks.

b. Post Work Review and Approval by Work Group

1) The (primary) implementing Work Group Supervisor or Designee shall review the completed Work Order task(s) and ensure:

- Work scope was completed and work site properly restored.
- Unused parts and materials were returned to the appropriate support location.
- All applicable permits are completed and/or released.
- Applicable data fields in CMMS and other work related documents were completed.
- Post maintenance testing was completed and evaluated for acceptance.
- Acceptable results were achieved or suitable justification is provided.
- All inspection/verification activities were completed.

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- All work comments were addressed and resolved.

NOTE: The review may necessitate a post work walkdown of the work area after work activities are complete to verify acceptability of conditions and that no inadvertent damage has occurred to the SSC being worked on or other equipment around the work area. Post work walkdowns may be performed by organizations other than the work group (e.g. Operations, Quality Assurance, or Engineering).

- If a task is subcontracted, the applicable Subcontract Technical Representative (STR) shall perform the closure responsibilities associated with the implementing Work Group Supervisor/Designee.
- The Work Group Supervisor/Designee shall evaluate discrepancies for non-conforming conditions and bring discrepancies that could affect equipment operability to the attention of the WMC and Facility Manager/ Custodian.
- Upon being satisfied that the work and associated documentation were adequately completed, the Work Group Supervisor/Designee shall sign-off the Work Order in CMMS as complete and ready for acceptance.

E. Work Closure

1. Customer Turnover/Work Acceptance

a. Upon notification that the Work Order is complete and the SSC is ready for turnover, the WMC will evaluate the work for acceptance. Any questions and concerns must be resolved prior to turnover. If satisfied, the WMC will accept the work and notify Operations of changes in equipment/system availability. WMC acceptance constitutes satisfaction that the work requested is field complete and that the facility/custodian accepts responsibility for the SSC back from the work organization. Customer turnover acceptance is to be documented in the CMMS.

b. If additional customer based post maintenance testing is required prior to work closure acceptance, the Scheduling Function shall contact the responsible organization for accomplishment of the testing. Normally this test would be included as a task in the Work Order. If the post maintenance testing is performed as a separate Work Order, however, the testing Work Order number shall be referenced in the Work Order by which the work was performed. When the customer is satisfied that acceptance criteria has been met, work acceptance will proceed (as defined in step E.1.a).

c. After completion of all applicable post maintenance testing, Operations ensures that the condition tags/stickers have been removed and all applicable permits cleared/closed. Return of equipment to operational status by the Facility Manager or Designee shall be in accordance with Manual 1Q, QAP 9-4 and Manual 2S, 5.5 section J.

2. Post Work Review and Approval

a. Prior to closure of Work Order tasks, the associated documentation must receive the additional reviews and approvals specified in Attachment B (Work Order Post

Approvals) if warranted by the prescribed conditions. These reviews and approvals shall be coordinated by the Scheduling Function.

b. Discrepancies that could affect equipment operability shall be brought to the attention of the WMC or designee.

c. Upon prompt resolution of all discrepancies, the reviewer shall indicate their approval for closure in CMMS.

d. When the final approval has been received, the Work Order will be timely closed by the WMC. If the SSC was classified as SC/SS, the WMC shall notify Operations all required reviews of the associated documentation have been completed and that the SSC may be returned to operational status.

3. Post Work Activities

a. Upon resolution of comments and final approval for closure, the WMC administrative staff shall purge non-record reference material from the Work Order documentation.

b. The planner shall evaluate the completed Work Order for lessons learned which may be incorporated into future maintenance activities to improve the process. Considerations should include information from post job ALARA reviews, critiques, and other identified procedure improvement opportunities. Any information that was not previously entered in the CMMS may be entered at this time. The following are types of information that should be input:

- changes or additions in system codes, equipment, model or serial numbers, and equipment modifications
- detailed description of work performed including: special tools, drawings, installed spare parts, safety and radiation protection requirements, testing results, and noted discrepancies, or problems and their resolutions
- component, Part, and Failure codes per instructions provided in Appendix F (optional)
- PM schedule update based on the completed Work Order information

c. If revisions were made to model CMMS Work Order documentation (e.g. WCP's, Work Order Task Instructions, Lock Out Plans, drawings, prints, procedures or documentation), the planner shall evaluate the revisions to determine if the changes need to be incorporated as permanent changes. If so, the planner shall initiate measures to properly update the document(s).

d. Feedback shall also be used to provide input for improvement of maintenance programs such as Preventive Maintenance, Predictive Maintenance, IPI, and RME/M&TE. Feedback may be generated by any participating organizations or may stem from trending and root cause analysis.

e. Upon completion of post work activities, all documentation that could not be maintained in CMMS shall be authenticated in accordance with Manual 1B, MRP 3.31 (required for Functional Class SC, SS and selected PS and GS only) and

transmitted to Document Control and Records Management. The maximum use of electronic scan/storage of documents is recommended for long term storage of data.

Records

Work Order documentation that can not be stored as records on CMMS are to be processed through Document Control and Records Management in accordance with WSRC RIDS. Records created by this procedure are retained in accordance with Site Record Retention and Disposition Schedule (RIDS) requirements.

References

- DOE Order 4330.4B, *Maintenance Management Program*
- Engineering Standard 15060 and Eng. Guide 15060
- Procedure Manual 1B, *Management Requirements and Procedures Manual*, MRP 3.31, "Records Management"
- Procedure Manual 1Q, *Quality Assurance Manual*
- Procedure Manual 2Q, *Fire Protection Manual*
- Procedure Manual 4Q, *Industrial Hygiene Manual*
- Procedure Manual 5Q, *Radiological Control Manual*
- Procedure Manual 5Q1.1, *RC and HPD Radiation and Contamination Control*
- Procedure Manual 7Q, *Security Manual*
- Procedure Manual 8Q, *Employee Safety Manual*
- Procedure Manual 2S, Conduct of Operations Manual
- Procedure Manual 1Y, *Conduct of Maintenance*
- Procedure Manual D2, *Nondestructive Examination Manual*
- Procedure Manual E7, *Conduct of Engineering and Technical Support*
- Procedure Manual Y1-7, *Pressure Equipment Registration, Inspection and Testing Procedure (DPSOP 298)*
- WSRC-IM-90-138, SRS Waste Disposal Procedure Manual

Requirements Control System

1. DOE Order 4330.4B, *Maintenance Management Program*

Attachments

Attachment A. Priority System
Attachment B. Work Order Approvals
Attachment C. Cross Orders
Attachment D. Work Order Task Instruction Development, Review and Approval
Attachment E. Work Package Administrative Controls
Attachment F. Lost Work Package Flowchart
Attachment G. Special Work Packages
Attachment H. Radiological Work Order Guidelines
Attachment I. Radiological Work Order Preparation Flowchart
Attachment J. Mock-Up Logic Tree
Attachment K. Mock-Up Checklist
Attachment L. Component, Part, and Condition/Found Codes
Attachment M. Condition Tag/Sticker
Attachment N. Work Flow Chart
Attachment O. Walkdown Data Sheet

Attachment A. Priority System (page 1 of 4)

Priority codes are to be assigned to identify the urgency of a Work Order based on the following descriptions:

PRIORITY E

DESCRIPTION: Emergency

Priority E is work that requires an immediate response. This consists of emergency maintenance action taken to prevent or mitigate the consequences of an accident, prevent the release of radioactive material to the environment, protect human life and/or property, prevent or mitigate environmental excursions, or restore the ability of the operator to obtain critical operating information and function.

Resulting emergency procurement actions require approval as outlined in Manual 7B, Procedure 1.1, Purchase Requisitioning.

RESPONSE:

Field work shall begin immediately with special coverage provided as required. Planning and completion of the Work Order is performed as soon as possible but without delaying the start of work. Once the emergency situation is stabilized work must cease and all applicable documentation brought up to date. Planning activities and approvals must be completed before proceeding with restoration of the structure, system or component.

PRIORITY 1

DESCRIPTION: Urgent

Priority 1 applies to repairs, replacements, or modifications required to satisfy Limiting Conditions for Operations (LCO) of equal to or less than 72 hours. This priority category consists of work on SSC's with high potential for near term significant impact to the health and safety of Site personnel, the general public, the environment, or plant reliability.

Resulting emergency procurement actions require approval as outlined in Manual 7B, Procedure 1.1, Purchase Requisitioning.

RESPONSE:

Work Order planning shall begin immediately and be completed prior to the start of work. Field work to address the LCO condition should begin as soon as possible after the Work Order is planned and approved (unless work is on hold for parts, RIE, permits, etc.)

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Attachment A. Priority System (page 2 of 4)

PRIORITY 2

DESCRIPTION: Primary

Priority 2 applies to repairs, replacements, or modifications required to satisfy Limiting Conditions for Operations (LCO) of greater than 72 hours. This priority category consists of work for SSC's with existing conditions that if not corrected to return a process to an operable status or if allowed to persist, has high probability of impacting the plant's ability to maintain a system or function in an operable status.

RESPONSE:

Work Order planning shall begin immediately and be completed prior to the start of work. Field work to address the LCO condition should begin as soon as possible after the Work Order is planned and approved (unless work is on hold for parts, RIE, permits, etc.)

PRIORITY 3

DESCRIPTION: Routine

Work required to support the facility mission but does not have an impact on facility reliability or safety. Examples include planned PM's and CM's.

Sub priority 3A - Deteriorating conditions could result in an upgrade of priority.

Sub priority 3B - Deteriorating conditions would not impact the priority.

RESPONSE:

Priority 3 applies to work which may be performed as manpower or other scheduled activities allow.

PRIORITY 4

DESCRIPTION: Non-priority

Priority 4 applies to work which is not required to support facility mission or safety requirements. Examples include general building or shop upkeep/ maintenance/improvements.

Attachment A. Priority System (page 3 of 4)

RESPONSE:

Priority 4 applies to work which may be performed as manpower and time permits.

PRIORITY 5

DESCRIPTION: Outage/Planned Maintenance Period

Priority 5 applies to work to be accomplished during a scheduled system or process shutdown (such as an outage/planned maintenance period). Priorities for these items may be adjusted as the schedule progresses.

Sub-priority 5A - Work required/needed to be completed during an outage/planned maintenance period

Sub-priority 5B - Work highly preferred to be completed during an outage/planned maintenance period.

Sub-priority 5C - Optional work for completion during an outage/planned maintenance period, time and resources permitting

RESPONSE:

As dictated by schedule.

PRIORITY 6

DESCRIPTION: Management Priority (MP)

Priority 6 allows management to expedite field work which under normal situations would receive a lower priority code than necessary to meet business objectives. Priority 6 work must be requested by level 2 management or higher. Due to the potential of schedule impact, this responsibility shall not be delegated. The justification for Priority 6 work must be documented on the Work Order for it to be accepted. Personnel specifying this code should be sensitive to its effect on other planned and in-progress work and should provide a need date for completion of the work.

RESPONSE:

Priority 6 work should begin as determined by management, but not prior to completion of work planning.

Attachment A. Priority System (page 4 of 4 Matrix)

Priority	Description	Response
E **Emergency**	Requires immediate Response To Prevent or Mitigate accident Prevent release to the environment Protect Human Life and/or Property Prevent or Mitigate environmental excursions Restore critical Operating information or functions Resulting emergency procurement actions require approval as outlined in Manual 7B, Procedure 1.1, Purchase Requisitioning.	Begin work immediately Provide special coverage as needed Planning and completion of work order performed as soon as possible Once the emergency situation is stabilized work must cease and all applicable documentation brought up to date. Planning activities and approvals must be completed before proceeding with restoration of the SSC.
1 **Urgent**	Work required to satisfy LCO of 72 hours or less Work on SSC's with near term high impact on health and safety, environment or plant reliability Resulting emergency procurement actions require approval as outlined in Manual 7B, Procedure 1.1, Purchase Requisitioning.	Begin planning immediately Begin work as soon as possible after planning and approval
2 **Primary**	Work required to satisfy LCO of more than 72 hours Work on SSC's with high probability of impacting the ability to maintain a system/function operable	Begin planning within 24 hours Begin work as soon as possible after planning and approval
3A **Routine**	Work to support facility mission No imminent impact on reliability and safety Deteriorating conditions could upgrade the priority	Perform planning and work as manpower and schedule allows
3B **Routine**	Work to support facility mission No imminent impact on reliability and safety Deteriorating conditions could upgrade the priority	Perform planning and work as manpower and schedule allows
4 **Non-Priority**	Not required for mission or safety (Example; shop upkeep/maintenance/improvements)	Perform planning and work as manpower and time permits
5A **Outage**	Work to be accomplished during a system/process outage Adjust priorities as the schedule progresses	Perform planning and work per schedule
5B **PMP**	Work during a planned time period, e.g., Planned Maintenance Period (PMP) Adjust priorities as the schedule progresses	Perform planning and work per schedule
5C **Outage/PMP**	Optional work to be accomplished during a system/process outage or during a planned time period, e.g., Planned Period (PMP) Adjust priorities as the schedule progresses	Perform planning and work per schedule
6 **Management Priority**	Must be requested by Level 2 Manager or above (This cannot be delegated) Document justification on Work Order Must assign a need date	Perform planning and work according to need date

Attachment B. Work Order Approvals (page 1 of 4)

Work Order Approvals

All Work Orders must be approved by the Work Management Center Manager or designee in order to be activated. For work within the FIN scope, this approval constitutes authority to accomplish the activities defined in the scope.

Work Order Pre-Approvals

Pre-Work Approval Matrix	**SC/SS**	**PS/GS**	**Mod**
Engineering	10	10	Y**
CQF	Y*	11*	Y*
Implementing Work Group/Designee	Y	Y	Y
RCO	1	1	1
Fire Protection Coordinator	2*	2*	2*
Industrial Hygiene	3*	3*	3*
Work Management Center	Y	Y	Y
Facility Operations	4	4	4
Other Work Groups	5*	5*	5*
Facility Waste Coordinator	6*	6*	6*
Environmental Coordinator	7*	7*	7*
Welding Independent Examination Organization	8*	8*	8*
Utility Owner	12*	12*	12*
HVAC Coordinator or Engineer	9*	9*	9*

NOTE 1: * Approval is not required if the work is being performed to documents which have been pre-approved.

** Approval is not required for GS modifications as excluded in Manual E7 Procedure 2.05.

NOTE 2: If a task is subcontracted, the applicable Subcontract Technical Representative (STR) shall sign for the implementing Work Group Supervisor/Designee.

Attachment B. Work Order Approvals (page 2 of 4)

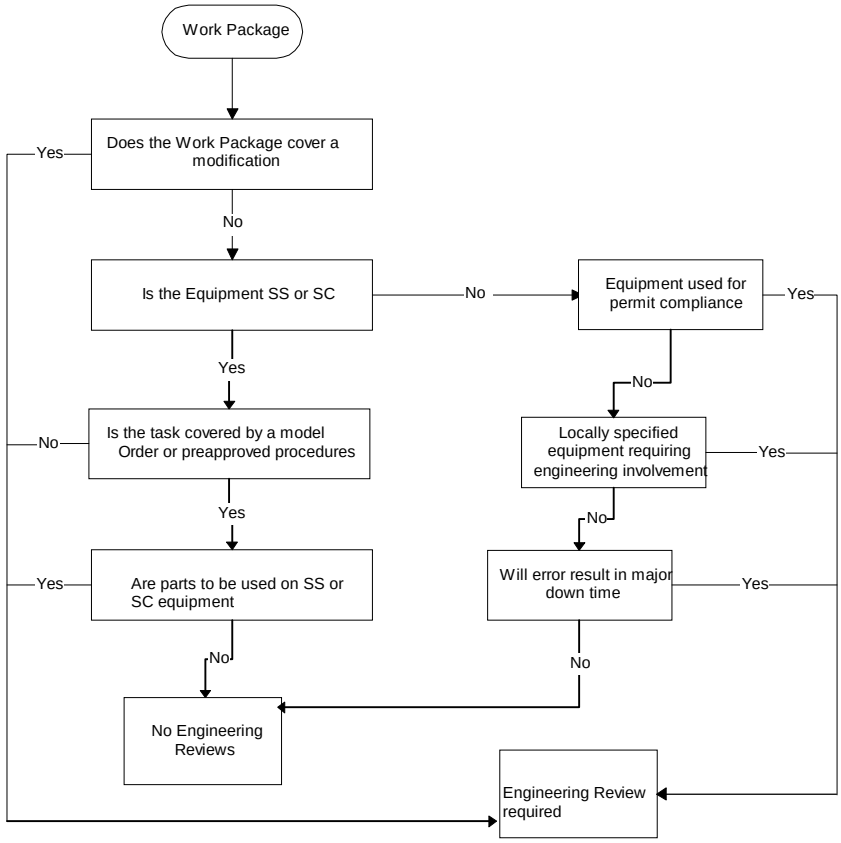
MATRIX KEY

Y	Always required unless marked with an asterisk **see note 1**.
1	RCO approval is required for all work that presents a radiological hazard.
2	Fire Protection Coordinator approval is required if the work to be performed impacts fire safety systems or introduces an ignition source.
3	Industrial Hygiene approval is required if the work to be performed involves hazardous material, confined space entry, excavations or maintenance or servicing of laser devices.
4	Facility Operations Shift Manager /Designee approval is required if the work to be performed will cause an LCO or if Operations must start, stop, align or perform extensive activities within the maintenance instructions.
5	Other Work Groups, approval is required if they have personnel who will perform work in addition to the primary Work Group.
6	Facility Waste Coordinator approval is required if the work to be performed will generate any mixed or hazardous waste as defined by the Savannah River Site Environmental Compliance Manual 3Q or require a new satellite accumulation area or a new staging area. Generate excessive amounts of radioactive waste (greater than one B25 box) or require special waste disposal methods.
7	Environmental Coordinator approval is required if the work to be performed will affect permitted environmental systems (for example: National Pollution Discharge Elimination System (NPDES); changes waste water characteristics or sources) and permitted outfall sampling equipment.
8	Welding Independent Examination Organization approval is required if the work to be performed involves welding and requires independent examinations.
9	HVAC Coordinator/or Engineering approval is required if the work to be performed involves process ventilation and air balance.
10	Determine approval requirements using Engineering Review Decision Tree (Attachment B).
11	The responsible CQF approval is required if the work to be performed requires independent inspections or is for startup operations.
12	Utility owner approval is required for work near overhead power lines.

Attachment B. Work Order Approvals (page 3 of 4)

Engineering Review Decision Tree

Decision Tree to Determine Requirement for Engineering Review of Work



Attachment B. Work Order Approvals (page 4 of 4)

Work Order Post Approvals

Post Work Approval Matrix	SC/SS	PS/GS	Mod
Engineering	N	N	Y
CQF	Y	1	Y
Implementing Work Group	Y	Y	Y
Work Management Center or Facility Manager/Designee	Y	Y	Y

Matrix Key

N Not required
Y Required always
1 The responsible CQF approval is required if the work requires independent inspections

NOTE: If a task is subcontracted, the applicable STR shall sign for the implementing Work Group Supervisor/Designee.

Attachment C. Cross Orders (page 1 of 2)

This attachment provides additional information for cross ordering tasks to work groups outside of the control of the cognizant Facility WMC (FWMC). The requirements for Work Orders shall be followed as defined in the main body of the procedure unless superseded or added to by this attachment.

NOTE: Work should not be performed, nor charges (costs) incurred by the Support WMC (SWMC) without approval from the FWMCs.

1. Once the Work Order/cross order information required by step A.3.a. has been entered into CMMS, the FWMC shall notify the SWMC, as needed, to assist in the performance of the detailed screening. If the SWMC represents the primary service group performing the task, they shall perform the walkdown and be responsible for any subsequent planning that is necessary to accomplish a task.

2. Work Order comment resolution and approvals shall be coordinated by the SWMC planning organization. In addition to the approvals for a Work Order task required per Attachment B, subcontract planning shall obtain approval of the FWMC or designee for tasks performed in the FWMC's area of responsibility.

3. The SWMC shall balance resources to meet the customer organization's needs. To assist in this process, the SWMC Scheduling Function shall supply the FWMC Scheduling Function work order specific scheduling information necessary to make Optimum Performance Window (OPW) and Integrated Work Schedule (IWS) determinations. The FWMC's scheduling organization shall supply customer SWMC's with a copy of finalized Work Order schedules.

4. The implementing Work Group must obtain authorization from the FWMC or the Facility Operations Manager/Custodian or Designee prior to performance of work in another WMC's facility.

5. If equipment must be transported to a SWMC work group's shops to be worked, the organization removing the equipment must prepare it for transport and attach a T&T tag which denotes the Work Order number.

6. The implementing services work group shall execute work in accordance with the Work Order and return the equipment to the designated facility (if applicable). Documentation shall be routed to FWMC planner for Work Order close-out. If the equipment is being reworked for use as a spare, the Work Order needs to specify shipping instructions for delivery to the local or site warehouse. All supporting documentation, such as the Extra Machinery Transfer form, any additional in-storage maintenance requirements are to go with the equipment. The Work Order that was used to remove the equipment should be closed prior to shipment.

7. Facility work groups receiving equipment maintained by a service work group are responsible for reviewing the documentation and performance of visual inspections of the equipment prior to installation. Documentation received with equipment shall be incorporated or referenced by the facility work group into installation Work Order documentation.

Attachment C. Cross Orders (page 2 of 2)

8. In addition to the post work approvals required per Attachment B for a Work Order task, the SWMC shall obtain final work acceptance from the FWMC or designee for tasks performed in the FWMC's facility. All non-electronic documentation for cross-ordered tasks shall be forwarded to the FWMC for record storage.

Attachment D. Work Instruction Development, Review And Approval (page 1 of 3)

This attachment provides direction for personnel involved in the development and processing of Work Instructions. Work Instructions are used to sequence, branch, direct and/or control work activities. They shall not be used to circumvent an existing procedure and shall be reviewed to determine if a procedure needs to be generated.

1. The planner shall review the scope of the requested work and determine if the complexity or criticality of the activity warrants additional instructions. Typically, SC/SS work is performed to a procedure or Work Instruction. If pre-approved procedures/instructions existed for SC/SS work, they are to be utilized. If the activity warrants additional instructions and none exists, the planner shall initiate a procedure or Work Instruction, as appropriate.
2. If it is determined that a Work Instruction needs to be developed and a similar Work Instruction already exists, the planner shall revise or modify the existing document as required. If no similar Work Instruction exists, the planner shall initiate development of a new Work Instruction. Technical guidance shall be obtained from Engineering, vendors/vendor manuals or other sources (e.g. prints or Radcon, Fire Protection, Safety, Quality organizations). Approvals for new and revised Work Instructions shall be in accordance with Attachment B for Work Order Pre-Approvals.
3. The scope and applicability of individual Work Instructions should be specified if not readily apparent.
4. Work Instructions with single facility applicability should be distinctively identified to avoid confusion with the procedures of similar facilities.
5. Prerequisites and initial conditions should be appropriately detailed and located within the Work Instruction to promote understanding.
6. Work Instructions should contain sufficient but not excessive detail. The skill level, experience, and training of the users should be considered. (It is the responsibility of personnel performing the maintenance review to ensure that the level of detail is acceptable.)
7. Work Instructions should be technically and administratively accurate (i.e., the instructions and information should be correct and necessary instructions should be present to guide the user when transferring between procedures or instructions).
8. Limits and/or tolerances for parameters should be specified and consistent with the readable accuracy of instrumentation. Users should not be required to perform mental arithmetic to determine if a specified parameter is acceptable.
9. Work Instructions should be developed with consideration for the human-factor aspects of their intended use e.g. references to components should exactly match drawing and label-plate identifiers, units should be consistent with those marked on applicable instrumentation, and charts and graphs should be easily read and interpreted.
10. Work Instructions should be developed giving consideration to the generation of waste. Instructions should include techniques to minimize the formation of waste during the preparation and performance of work.

Attachment D. Work Instruction Development, Review And Approval (page 2 of 3)

11. The text of Work Instructions are to be prepared and documented in CMMS in accordance with the following requirements:

NOTE: The WSRC Writer's Guide may be utilized for guidance in development of the textual context of Work Order Task Instruction performance steps.

- Provide NOTE, WARNING, OR CAUTION statements on the same page as, and prior to, applicable steps.
- Start action steps with an action verb where possible.
- Designate the position/organization responsible for performance of individual steps or sections where varying personnel qualifications and organizations are involved with the accomplishment of work.
- Provide steps in the intended order of accomplishment. Sequence of steps should conform to the normal or expected operational sequence. Steps which must be performed in a specific order shall be numbered and performed in that order unless otherwise specified.
- As a minimum provide blanks for the individual(s) performing the work to initial next to the steps using the following criteria:

a) Control of Criticality - steps which provide control for nuclear criticality safety.
b) Control of Process Hazards - steps which provide control needed for the safe manufacturing of a product or the control of product waste or by-product.
c) Design Requirements - steps which contain limits or requirements identified by design agencies.
d) Environmental Protection - steps which could result in a release of radiation, or unwanted elements such as radioactive contaminants, chemical release outside of standards.
e) Quality - steps to which the failure to perform would significantly impact the quality of a process or product or would create a Condition Adverse to Quality (per Manual 1Q, Appendix A).
f) Safety - steps which would create a hazard to personnel if not properly completed.
g) Technical Limit - steps which provide controls needed to prevent exceeding a limit established by an Operational Safety Requirement (OSR), a Technical Safety Requirement (TSR), Process Requirement (PR), or a Technical Standard and if not performed could result in operating outside of design limits or operating in an LCO.

12. Work planners will include, , a list of vendor/technical documents and other information reviewed or developed to prepare a Work Instruction draft or revision in CMMS.
13. Post Maintenance Testing requirements are to be included as applicable in accordance with Manual 1Y, Procedure 9.01.
14. Work instructions should include directions for completion of Quality Assurance Reports / Quality Insurance Plans as appropriate.

Attachment D. Work Instruction Development, Review And Approval (page 3 of 3)

15. If making a revision to a Work Instruction, then

NOTE: Revisions in which the Work Instructions is completely rewritten do not require the use of revision bars.

- Indicate revised material.
- Increase the revision or version level to the next number.

Attachment E. Work Order Administrative Controls (page 1 of 5)

This attachment defines the administrative controls to support changes of approved Work Orders and the reconstruction of lost Work Orders.

NOTE: Documents contained within a Work Order may have different revision numbers from other documents contained in the Work Order (i.e. a BOM may be Rev. 1 and the Instructions may be Rev 0).

A. Minor Changes - Consists of one or more of the following and does not fit the definition of major change:

- Editorial changes
- Addition of clarification text or documents
- Addition or correction of Work Order forms
- N/A of steps that do not change the intent of approved work package instructions, procedures, or description of work. Signature, date and justification shall be provided.

SRS personnel

1. Minor changes to a Work Order documents shall be processed by:

   a) Drawing a single line through deletions
   b) N/A steps and provide proper justification
   c) Adding forms or corrected forms to the Work Order
   d) Initialing and dating all changes.

B. Major Changes - Consists of one or more of the following:

- Changes in physical work boundaries
- Conflicts with a source document requirement
- Changes to actions that change the intent (operational, technical, design and quality control requirements) of approved work package instructions procedures or description of work
- Substitution of materials/parts
- Changes to acceptance criteria
- Changes in independent/in-process inspections (i.e., deletion of independent/in-process inspections where the action step will be performed)
- Point at which a document becomes unclear due to multiple minor changes to the work package
- Increase safety risk to personnel
- Eliminates any required review or approval

Attachment E. Work Order Administrative Controls (page 2 of 5)

SRS personnel

1. Major Changes to a Work Order document shall be processed by:

   a) The Work Order Revision Sheet (OSR 39-89) may be used to make recommended changes. Revisions may be made in the field or the Work Order may be forwarded to the Work Management Center for revisions.
   b) Make the necessary changes to the appropriate documents. If pen and ink is used identify the changes, with either a vertical line out to the side or by enclosing them in a "cloud (all changes shall be identified with this revision number to make it clear what was approved).
   c) Determine the required approval signatures (reference Attachment B). Obtain the required signatures on the revision sheet or adjacent to the “pen and ink” change prior to reissuing the package to the FIN/work group.
   d) Ensure lockout boundaries are still adequate for Work Order change. If not adequate, request a Lockout Modification.
   e) Ensure approved parts are on hand and staged if parts are required by the revision.

2. Authorization to Continue Work

   a) If physical work boundaries or hazards change, a new, authorized WCP must be obtained prior to continuing with work.

3. Work Order Approval Signatures

NOTE: Reference Section 5 of this attachment for Alternate Approval Methods.

   a) Obtain Engineering approval if the content of the revision impacts Engineering elements of the package/instructions as determined by the WMC or Work Group Supervisor/Designee.
   b) Obtain CQF approval if content of the revision impacts Quality elements of the package/instructions as determined by the WMC or Work Group Supervisor/Designee.
   c) Obtain Radiological Control/Radiological Control Operations (RCO) approval if:

      - The proposed changes do not match the original work description of the established Radiological Work Permit.
      - The changes add, remove or modify radcon steps or hold points
      - The change presents a radiological hazard (e.g. excavation in a potential radiological hazardous area)

   d) Obtain Fire Protection Coordinator approval if the changes involve an impairment to a Fire Protection Component or System not identified in the original scope of work or procedure.
   e) Obtain other affected organizations approval.

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Attachment E. Work Order Administrative Controls (page 3 of 5)

C. Work Order Closure for Work Cancellation

Cancellation Initiator

NOTE: Work Orders that have been authorized to work are considered records and must be maintained. The following is required for such cases and others as noted.

NOTE: All Work Orders canceled or suspended due to mission changes (i.e. laid-up Work Orders), regardless of implementation status, may be maintained either in an interim file or within the CMMS Document. This will allow for retrieval of information if the Work Order is later required to be performed. All laid-up Work Orders should be statused to ensure that the facility condition is accurately portrayed by CMMS.

NOTE: If a Work Order is no longer required, the work or remaining work may be canceled. The appropriate Work History section of the Work Order may be used to capture information used in the closure of the Work Order.

1. If a Work Order has been opened in error, is a duplicate, or is superseded by a more comprehensive PM (i.e., an annual supersedes a monthly or quarterly), the Work Management Center is authorized to cancel the Work Order by providing the reason for cancellation.

2. To cancel the Work Order, the following information shall be recorded in the CMMS:

   - Work Order number
   - Work Management Center cancellation approval with notification to the Facility Manager/custodian
   - Reason for cancellation
   - State of equipment (optional if Work Order has not been released to work)

3. When the work is canceled request operations to remove condition tags. Condition tags will remain in the field for laid-up Work Order packages since the condition still exists.

4. Forward documentation to Work Control.

Work Control Personnel

NOTE: Closure review for laid-up Work Orders is to verify that the facility is in a safe condition. The review will not require administrative discrepancies to be corrected. Deficiencies affecting hardware shall be documented and tracked via a Nonconformance Report or a CM Work Order.

Attachment E. Work Order Administrative Controls (page 4 of 5)

5. If the Work Order has been authorized to work, obtain closure approvals in accordance with Attachment B of this procedure.

6. Close out the work package in accordance with Section D and E of this procedure and status properly in CMMS. If the Work Order has not been authorized to work, no hard copy documentation is required and the close-out will be done in CMMS only.

7. Notify supporting organizations of Work Order cancellation.

8. Forward documentation to Document Control.

D. Lost Work Order Closure

Work Control Personnel

NOTE: If the work has not been authorized, determine if the work is still needed. If so reproduce the Work Order and route for approval.

NOTE: Attachment F summarizes required actions for authorized lost Work Order activities.

NOTE: Approval shall be in accordance with post-work review matrix in Attachment B.

1. If the work requires documented acceptance criteria and documented evidence of acceptance criteria can be found, complete Lost Work Package Closure Approval Sheet (OSR 39-92) with supporting documentation and close package.

2. If the work package does not require documented acceptance criteria, the activity shall be evaluated as follows and would require the completion of (OSR 39-92) with supporting documentation for approval and closure:

   a) If status can be determined by field walk down, the planner, maintenance personnel, or engineering shall perform and document the status on (OSR 39-92).
   b) If status can be determined by performance testing, then the Planner shall document on (OSR 39-92) and request initiation of testing.
   c) If the work cannot be verified as complete or documented acceptance criteria is required and cannot be located:

      - Prepare a duplicate work package
      - Identify Work Order as duplicate original
      - Update WMS to indicate that a duplicate original work package exists

Attachment E. Work Order Administrative Controls (page 5 of 5)

E. Alternate Approval Methods

NOTE: The preferred method of documenting concurrence and approval is by original signature on the appropriate form. Acceptable alternate methods are approval by use of telephone conversation (telecon), fax machine, or electronic mail messages.

SRS Personnel

1. The approving/concurring individual should be contacted by telephone, electronic mail, or fax and provided with the following information:

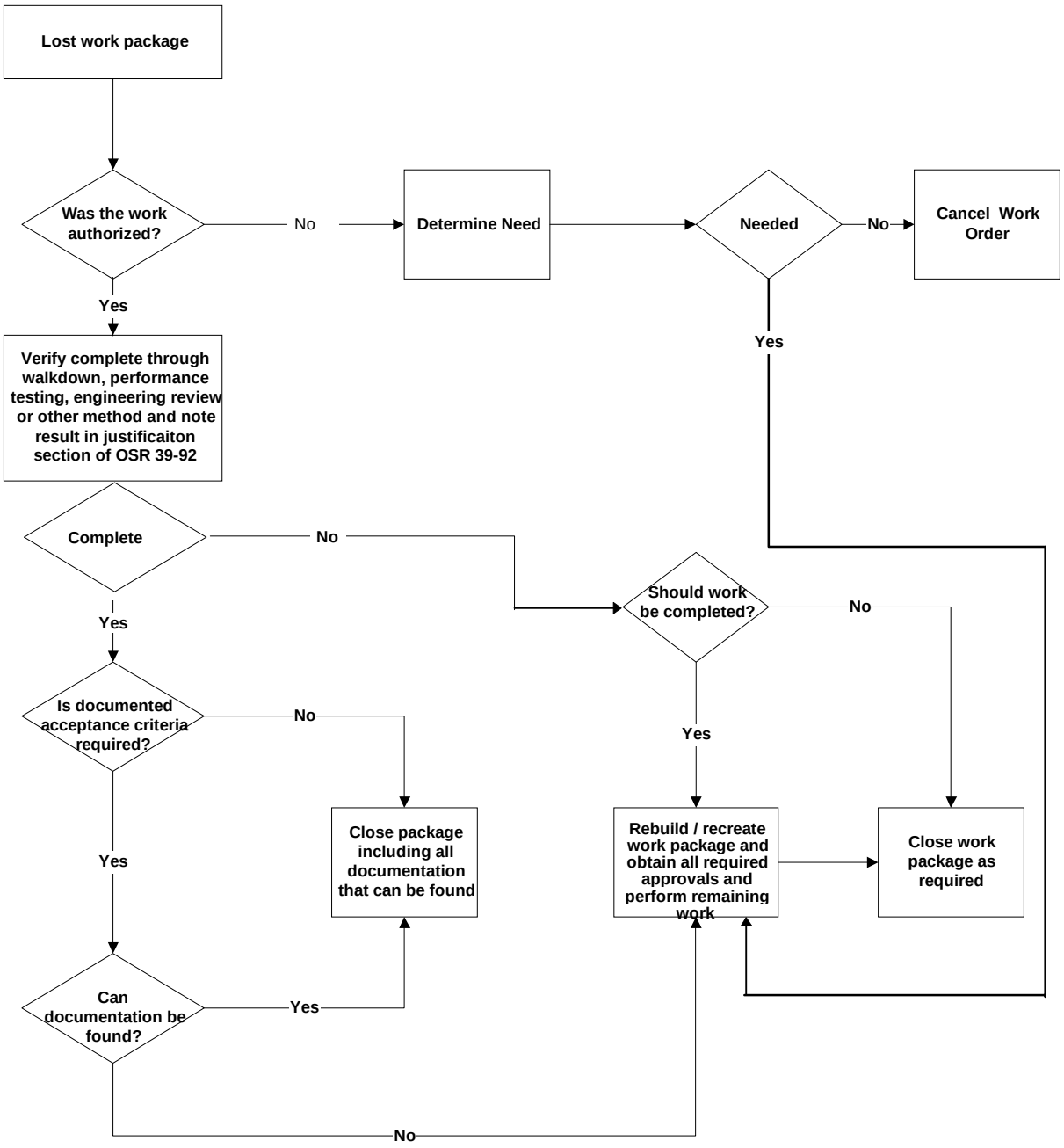
   - A detailed briefing on the purpose, scope, content of the work package or changes (revisions) requiring approval.
   - Any operational safety requirements, technical limits, operation limits or environmental limits that may be impacted.

2. If approval is granted sign and date on the appropriate form noting who the approval is made for, by what method and when. Attach fax copies and electronic mail messages when used.

   Example: Your signature for printed name of approver per fax date/time

Attachment F. Lost Work Package Flow Chart

Attachment F. Lost Work Package Flow Chart



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Attachment G. Special Work Order Packages (page 1 of 3)

This attachment provides additional instructions on preparing special Work Order packages. The requirements for initiation, approval, preparation, review and closure of Work Orders shall be followed as defined in the body of this procedure unless superseded or added to by this attachment. Special Work Order packages include Emergency Work Orders packages, Plant Modification Work Order/Temporary Modification Work Order packages, and Fixed Price Subcontract Work packages.

A. Emergency Work Orders (Priority E)

This section applies to all activities that are categorized Priority E as defined by Attachment A. This section establishes the method in which maintenance actions may be taken to mitigate an emergency event and completion of appropriate Work Control documentation. With operation's direction perform the following:

WMC

1. Grant verbal permission, provide scope of work and dispatch FIN team to begin work without a Work Order package to prevent injury to personnel, damage to equipment or to maintain an acceptable margin of safety.

2. Document the emergency deviation in the shift log.

3. Issue a Work Order in accordance with this procedure as soon as practical, normally within 12 hours, of declaring the emergency.

4. Denote the Work Order as Priority E indicating a condition that presents imminent danger to the health or safety of personnel, the environment, security, or operation of a facility.

5. Notify the CQF/CTF to witness work, where applicable.

FIN/Implementing Work group

6. Begin work at WMC's direction. Complete only those repairs required to mitigate emergency event.

7. Record activities performed for inclusion into Work Order (s).

NOTE: Work may proceed without presence of any additional personnel. If other responsible departments are readily available to accompany the FIN/implementing work group, they may do so.

8. Request Planner, or appropriate additional personnel, to be present to record actual work performed.

Attachment G. Special Work Orders (page 2 of 3)

Quality Assurance/Engineering

9. Witness emergency work if applicable and time permits.

Work Control Personnel

NOTE: The following steps should be completed in a timely manner.

10. Generate all documentation required while the work is being performed or after the fact.

11. Following stabilization of the emergency condition, obtain all normally required documentation and approvals before proceeding.

12. Ensure all documentation for actions taken prior to stabilization of the emergency is completed.

B. Plant Modification Work Order/Temporary Modification Work Order

NOTE: The following items apply to the development of a Work Order package for implementation of an approved Design Change Package/Design Change Form from Engineering.

Engineering

1. Provide the following to Work Control for planning/Work Order development:

   - Work Order initiated in CMMS with all required fields complete.
   - Functional/acceptance requirements
   - Plant Modification Traveler (not required to be included in the Work Order)
   - DCP/DCF and QAR's with any applicable hold points identified (not required to be included in the Work Order)
   - DCP/DCF implementation forms as required per Manual E7, Procedures 2.37 and 2.38 (appropriately completed and signed)
   - Detailed work instructions for implementation of the design change
   - List of all required parts/materials along with any required RIE/CGD’s

Work Control Personnel

2. Ensure the following are addressed in Work Order:

   - Functional/acceptance requirements are included as specified by Engineering

Attachment G. Special Work Orders (page 3 of 3)

- Form OSR 20-22 as required per Manual 8Q, Procedure 51
- Items listed in the "Special Consideration for Installation" section of the DCF/DCP are addressed
- Quality Assurance Report (QAR) requirements
- Field walkdown and validation of work instructions and parts/materials list

Implementing Work Group

3. Sign DCP/DCF Implementation Form to signify physical completion of work described on DCP/DCF per E7 Manual Procedure 2.38 - Design Change Package.

Attachment H. Radiological Work Order Guidelines (Page 1 of 2)

This attachment provides guidance for the development of Work Orders relative to the inclusion of specific control measures for work involving radiological hazards. (See Attachment I) The guidelines provided by this attachment are applicable to all Work Orders that involve working with, or around, radiological materials.

A. Pre-work Review and Approval Radiological Control Operations

1. For work in areas containing radiological hazards, Radiological Control Operations shall take the following actions:

   a) Review the Work Order and the affected facility conditions to determine whether work can be done under an established Standing Radiation Work Permit (SRWP) or if a Job Specific Radiation Work Permit (RWP) is needed.

   b) Generate an RWP if one is required and provide assistance for Radiological instructions, Hold Points and other Radcon issues.

   c) Determine the need for an ALARA review/pre-job briefing based on the criteria established in Manual 5Q 1.1.

   d) Assist in determining containment requirements.

   e) Ensure all Radiological issues are covered by the SRWP or RWP and the Work Package.

2. Work Control personnel shall take the following actions:

   a) Ensure sufficient level of detail is incorporated in Work Order instructions (Radiological instructions, Hold Points, etc.) to control work within guidelines specified in RWP.

   b) Initiate procurement of special tools/contamination equipment and arrange for development of mockups, if applicable.

B. Work Preparation

1. The Implementing Work Group shall take the following actions:

   a) Hold a pre job briefing as specified in the Radiological Work Permit.

   b) Conduct and document ALARA review/pre-job briefing as required by Manual 5Q.

Attachment H. Radiological Work Order Guidelines (Page 2 of 2)

C. Post Work Review Radiological Control Operations

1. Implementing Work Group shall take the following actions:

   a) Review the Work Order package to ensure that radiological control requirements have been satisfied and documentation is included in the Work Order package.

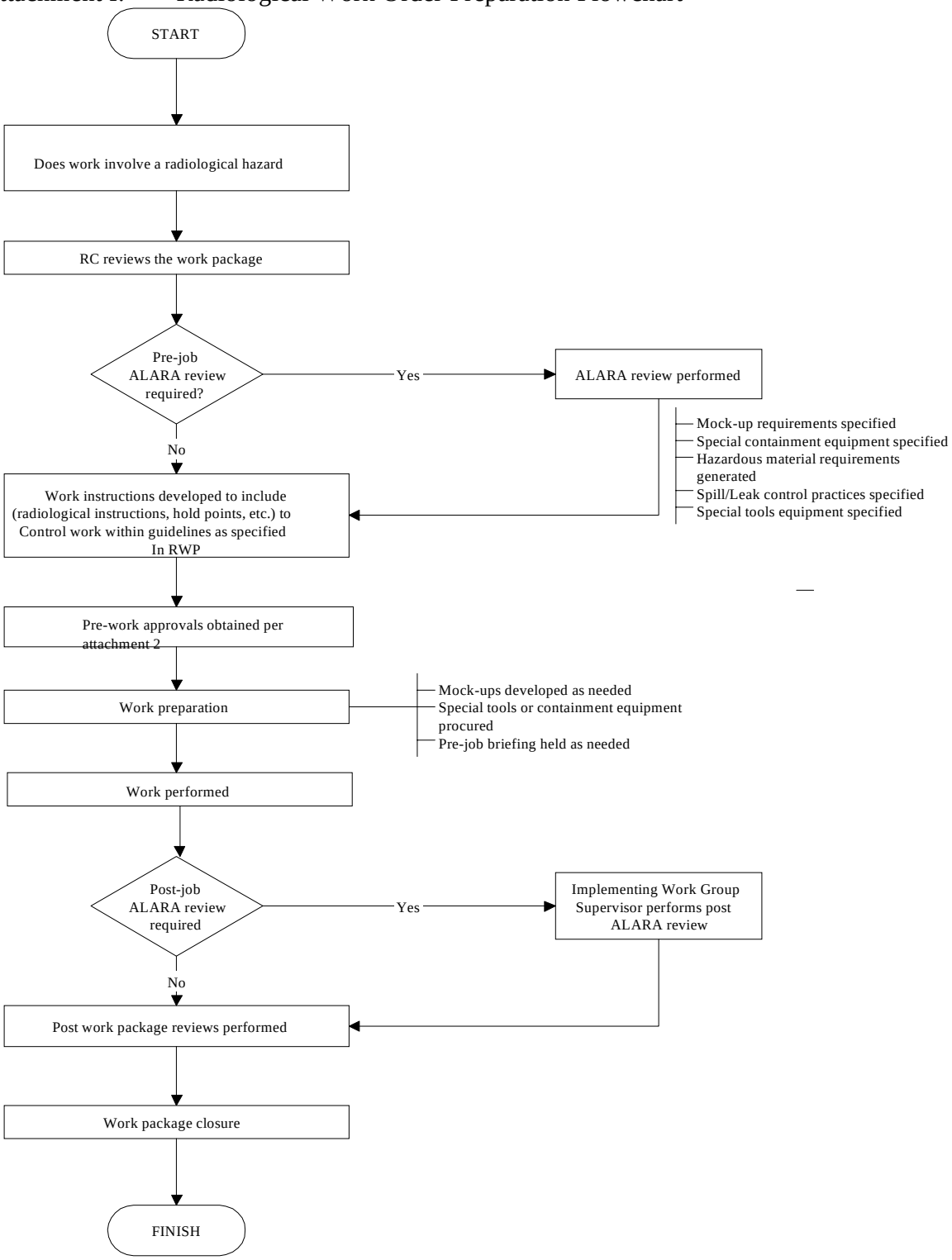
   b) Determine the need for and initiate a post-job ALARA review per Manual 5Q.

   c) Conduct and document a post job ALARA review as required.

Work Control Personnel

2. Obtain post-work approvals Attachment B.

Attachment I. Radiological Work Order Preparation Flowchart



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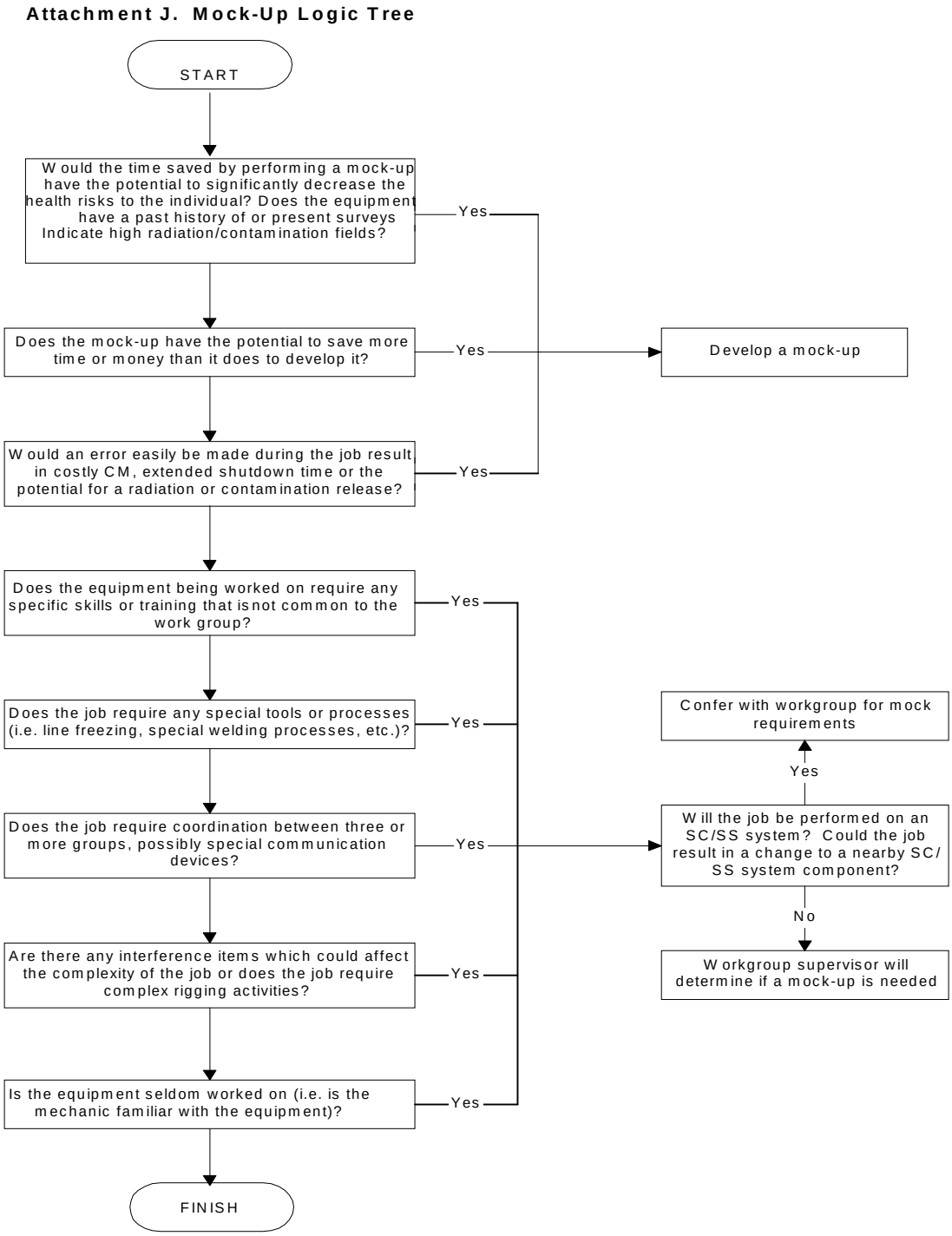
Attachment J. Mock-Up Logic Tree



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Attachment K. Mock-Up Checklist

1. Are all tools that are unwieldy or require special operating conditions addressed?
2. Do any tools require special hookups, operating conditions or procedures, power supplies, etc.
3. Are all known local or excessive radiation or contamination points reflected?
4. Would a JSRWP survey require contamination control?
5. Could the job be suspended or altered by a change in conditions? If so, are they addressed?
6. Are all interference items or nearby hot spots addressed?
7. Are all potential moderator leaks and their cleanup reflected?
8. Are any plant services required and is their loss addressed? (i.e., loss of breathing air, loss of electrical power, loss of ventilation, etc.)
9. Are emergency exit procedures, spill control and other emergency situations addressed?
10. Is any sampling that RC will be required to take included?
11. Are any major equipment failures that could occur and any emergency action that would be required adequately addressed?
12. Are all unusual or difficult rigging requirements addressed?
13. Are there any special requirements in the RWP which need to be included? (plastic suit, glove boxes, shielding, surveys, time constraints glove bags/containment etc.)
14. Is any special welding, testing, fabrication being performed on the equipment?
15. Are all points in the job that requires unusual skill or attention addressed?
16. Are RCO, Operations, Quality, etc., required for the job and should they be present?
17. Is the mechanic's level of knowledge about the equipment adequately considered?
18. Is any special communication or coordination between organizations addressed?

If the answer to any of these question is yes, then consider the use of the mock-up.

Attachment L. Component, Part, and Condition/Found Code (page 1 of 3)

This attachment provides the Component, Part and Failure/Condition Found codes to be used when entering repair keys on the Detail Failure/Action Taken Coding for Work Orders involving corrective maintenance. These codes may be used to trend performance of systems/equipment where beneficial. This attachment applies to any work group performing corrective maintenance work.

1. The work group performing corrective maintenance work should list the most descriptive Component, Part and Failure/Condition Found Codes from the data tables listed below on the repair key codes line of the Work History Sheet.

2. The Component Code should be entered in the first three spaces for the repair key codes, the Part Code in the next two spaces, and the Failure/Condition Found Code in the last two spaces. If a part is not involved, leave the spaces blank and enter a description of the work performed in the Work Performed Section.

Component Code Table

Component	Code	Component	Code
Actuator/Operator	BON	Hydraulic System	HYD
Air Conditioner	ACN	Indicator	IND
Alarm/Annunciator	ALA	Integrator	INT
Amplifier	AMP	Inverter	INR
Analyzer	ANA	Isolation Device	INS
Antenna	ANT	Monitoring Equipment	CRM
Assembly-Fuel/Target	FLA	Motor/Engine	MOT
Battery	BAT	Panel	PAN
Battery Charger	BLG	Pipe, Hose, Tubing, Line	PHL
Boiler	BOI	Plenum	PLU
Boom	BOM	Positioner	POS
Brake	BRA	Power Supply	POW
Breaker-Electrical	BRE	Power Transmission	TRS
Breaker-Vacuum	VAC	Pressure Relief Valve	PRV
Cabinet	CAB	Pump	PUM
Camera	CAM	Rack	RAC
Cart	CAR	Reboiler	REB
CCTV	CCT	Receiver	ACU
Column	COL	Recombiner	REC
Compressor	COM	Recorder	RCR
Computer	CMP	Reduction Gear	REO
Condenser	CON	Regulator-Electrical/Mechanical	REG
Control Station	CNT	Relay	REL
Controller	CTR	Rod-Control/Safety	ROD
Converter - Elect/Mech	COV	Rotometer/Flowmeter	RTM
Counter/Totalizer	COU	Rupture Disc	PSE
Conveyor	CNV	Safety Head (Rupture Disc)	DIH
Crane	CRA	Separator	SPR
Damper	DIA	Shear	SHE
Deionizer	DIE	Shell	SHA
Detector	DET	Shielding-Thermal/Radiation	SHV

Attachment L. Component, Part, and Condition/Found Code (page 2 of 3)

Component Code Table

Component	Code
Door	DOR
Drain	DRA
Drives-Control Rod	CND
Dryer	DRI
Duct	DUC
Elevator	ELV
Evaporator	ELE
Fan/Blower	FAN
Feeder	FEE
Filter	FIL
Fixture/Light/Receptacle	FIX
Generator	GEN
Governor	GOV
Heat Exchanger/Cooler	HEA
Heater	HAS
Hoist	HOI

Component	Code
Strainer/Screen	STR
Structure-Concrete/Steel	STE
Support	SUS
Switch	SWI
Tank/Vessel	TAN
Timer	TIM
Transformer	TRA
Transmitter	TRM
Turbine	TUR
Valve	VAL
Vessel	VES

Parts Code Table

Parts	Code
Adusting Ring	AR
Amplifier	AL
Battery Cell/Power Supply	AJ
Bearing/Roller	AL
Bellows	BE
Belt	BF
Blade/Finger	BI
Body	BD
Bonnet	BN
Brake	BK
Brusher	BR
Bushing	BU
Cable/Chain	BS
Cam	CA
Casing/Body	CI
Chamber	CH
Circuit	CK
Clutch	CL
Coil/Winding	CN
Conduit	CO
Connector	CR
Contact	CT
Coupling	DN
Cylinder	DR
Diaphragm	DS
Drum	DM
Dryer	DY
Duct/Chute	DT
Electrode	EL

Parts	Code
Impeller	IF
Insulation/Lining	IN
Insulator	IT
Integrator	OI
Jumper	JM
Keypad	OS
Lamp/Fixture	LB
Leads/Cable	LC
Lift Lever	LL
Linkage	LI
Lock/Latch	LK
Lubricant/Coolant	LO
Manifold/Header	MA
Meter/Indicator	MD
Motor	ME
Mount/Support	MS
Nozzle/Injector	NI
O-Ring	OA
Orifice/Venturi	OC
Packing	PL
Pilot Valve	PV
Pipe/Tube/Hose	PM
Piston/Plunger	PR
Positioner	PU
Print Mechanism	NP
Regulator/Governor	RH
Resistor	MR
Relay	RL
Rings/Wear Rings	WE

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Attachment L. Component, Part, and Condition/Found Code (page 3 of 3)

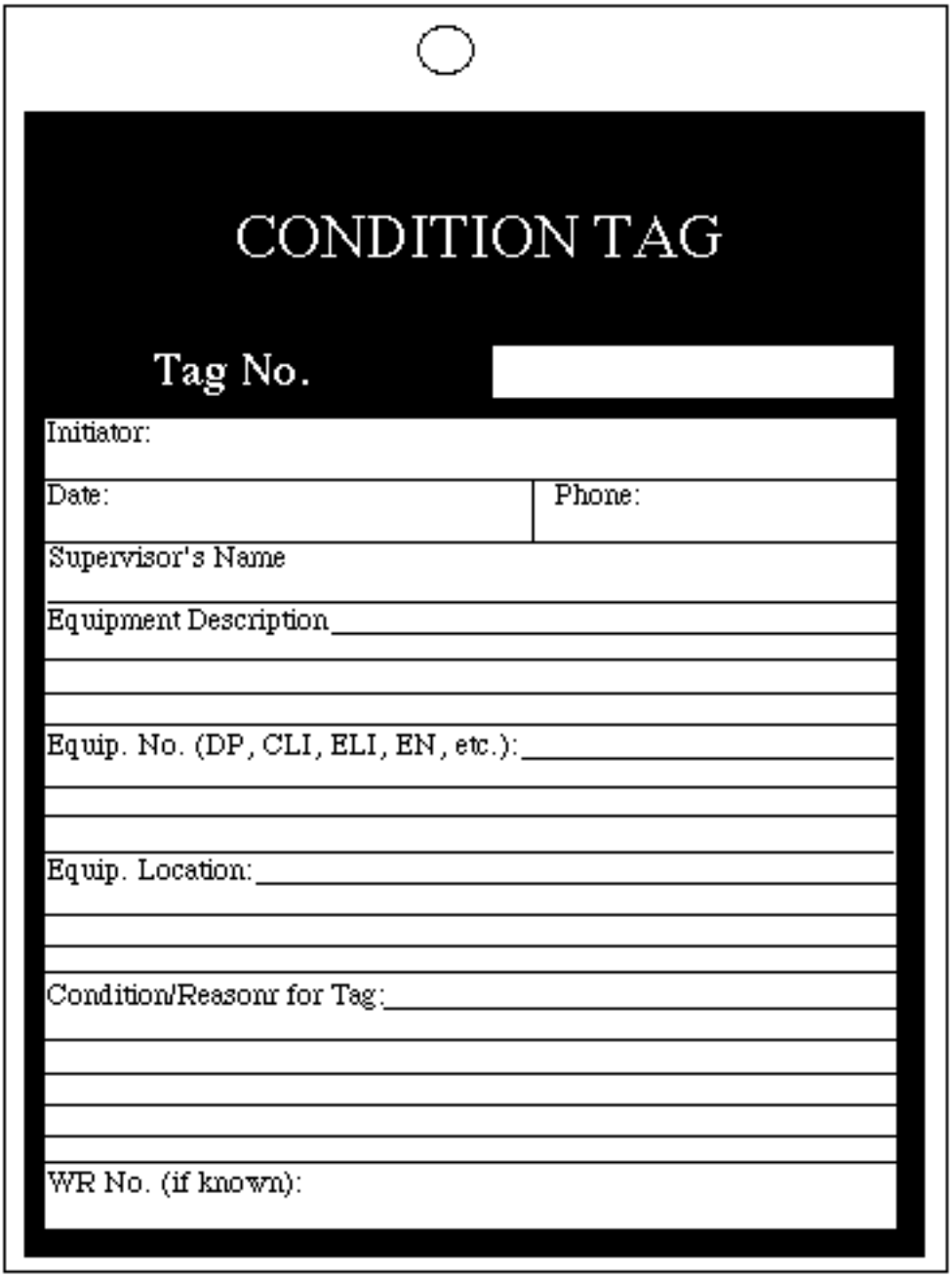
Parts Code Table

Parts	Code	Parts	Code
Element/Detector	EP	Rod	MW
Expansion Joint	ER	Rotor	OE
Fastener	FA	Seal	SA
Feeder/Conveyor	FD	Seat	SC
Filter/Strainer	FT	Shaft	SD
Fitting/Flange, etc.	FM	Sheave/Pulley	SG
Float/Displacer	LP	Shell	SK
Flywheet	FL	Shim	SH
Frame/Chassis	FR	Siren/Bell/Buzzer	SL
Fuel	FU	Sleeve	SM
Fuse/Overload/Breaker	OL	Slidewire	SU
Gage	GG	Solenoid/Servo	SR
Gas/Chemical	OH	Spring	SP
Gasket	OT	Starter	ST
Gate/Plug	GV	Stator	MF
Gear	GR	Stem	NT
Gland	ND	Surface	SF
Grout/Concrete	WO	Switch	NO
Guard/Cover	OP	Terminal	TB
Guide/Track/Rail	WR	Timer	TI
Handle/Knob/Lever	TQ	Transmitter/Transducer	TD
Head	UB	Trap	TO
Heater/Bruner	HT	Vac Tube/CRT	VI
Hinge	TW	Weld/Bonding	WC

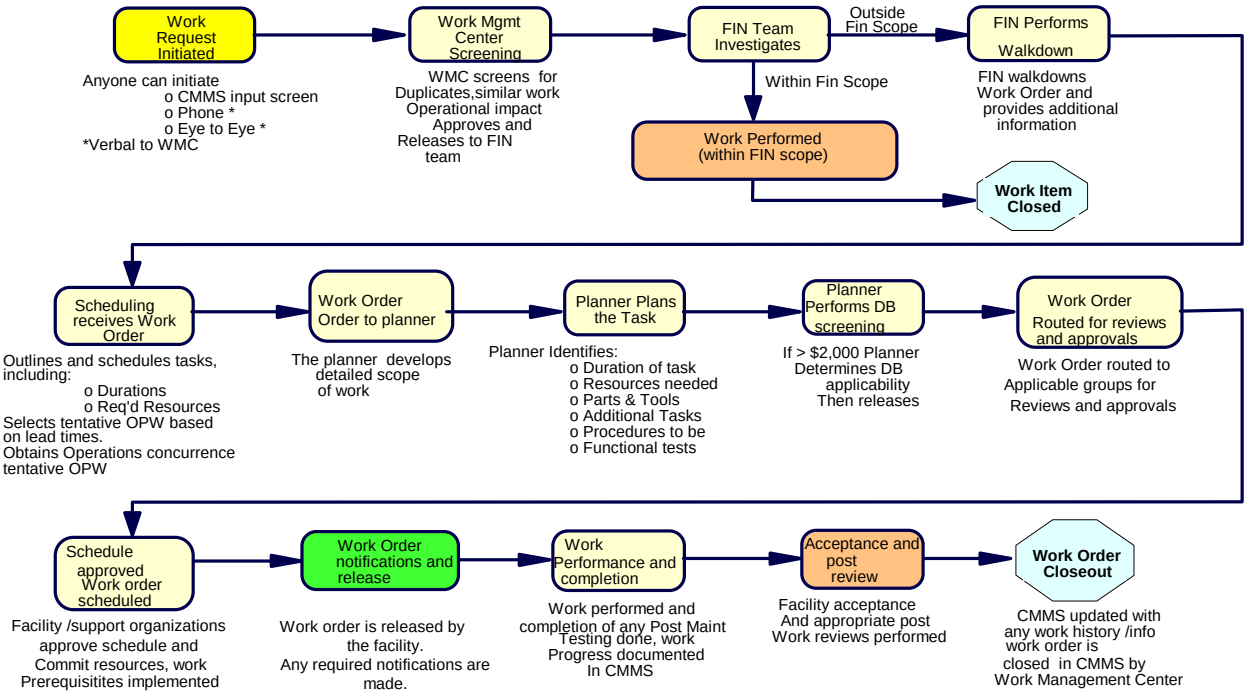
Failure/Condition Found Code Table

Failure/Condition Found	Code	Failure/Condition Found	Code
Bent	BE	Fused/Melted	FU
Blistering	BT	Out ofCalibration	CA
Blocked/Obstructed	BL	Out of Mechanical Adjustment	MA
Burned/Burned Out	BB	Pressure High/Low	PA
Checked OK	CK	Punctured	PU
Circuit Defective.	CG	Temperature-High/Low	TI
Connection Defective	CN	Tested Air	TA
Contacts Burned/Pitted/Corroded	BN	Tested Other	TO
Corrosion	CL	Tested Steam	TM
Crack Indication	CI	Tested Water	TW
Cracked, Sheared	SS	Uniform Corrision	CU
Dirty	DC	Vibration Excessive	RV
Dirty (Radiation)	DR	Weld Failure	WL
Electrical Overload	FB	Wet Indication	WE
Erosion	LO	Worn	RW
Fluid Leakage	FG		

Attachment M. Condition Tag/Sticker (sample)



Attachment N. Work Flow



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Attachment O.

Walkdown Data Sheet

Form Purpose: Tool to provide input to planning based on FIN team initial

Work Order	**Date of Walkdown**	**Walkdown Performed by**

Description of Maintenance Required Include any field observed conditions that merit planning consideration (e.g., ants building mounds in box, excessive corrosion on mechanical parts,

IDP CLI Number	**Location of Equipment**

Lockout Required
☐ YES ☐ NO

Equipment / System State Required for Maintenance
☐ Operating ☐ Shutdown ☐ Indifferent ☐ Other _____

Radiological Concerns
☐ RBA
☐ High RAD Area
☐ High Contamination Area
☐ Contamination Area
☐ RAD Area
☐ Line Break
☐ Plastic Suit Job
☐ Other_____
☐ None

Other Permits
☐ Confined Space
☐ Hot Work
☐ Excavation & Trenching
☐ Other_____

Special PPE Required

Containment
☐ Glove Bag ☐ Hut ☐ Tent ☐ Leak Collection Rig ☐ Other_____

Failed Equipment Nameplate Data (include all information listed on the nameplate unless accurate records already exist and are easily

Anticipated Craft Involvement
☐ E&I ☐ Maintenance ☐ Rigging ☐ Construction ☐ Welding ☐ QA ☐ RCO ☐ Other_____

Anticipated Associated Parts Required (e.g., conduit, pipe, wire,
List known parts that must be procured in order to complete the maintenance in a quality

Description	**Size**	**Material**	**Quantity**

Special MTE, Tools, or Equipment List
List any special or unique tool / items that will be required.

Required for Accessibility
Check items that may be required to complete the maintenance, and list or explain any accessibility issues that should be addressed by
☐ Scaffold ☐ Manlift ☐ Other _____
☐ Step Ladder ☐ Insulation Removed
☐ Large Ladder ☐ Obstructions Removed

"Please contact Jackie Wilkenson at 803-725-7478 to ensure you have most up-to-date version."